

☐ *Vacuum pressure & cryogenic controls*

☐ *Pumps*

☐ *Flowmeters*

☐ *Dispensers*

☐ *Glove boxes*

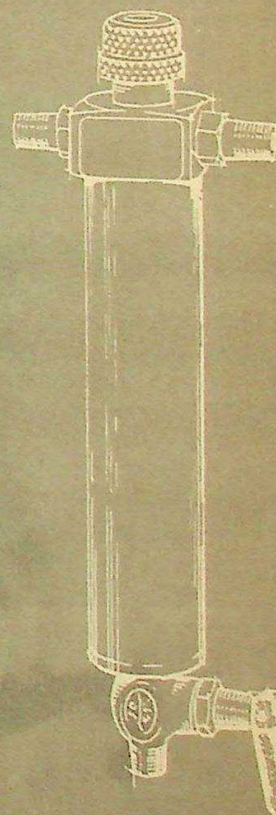
☐ *Laboratory accessories*

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OCT 25 1966

U. S. PATENT OFFICE

by MANOSTAT
1967



GREINER
SCIENTIFIC

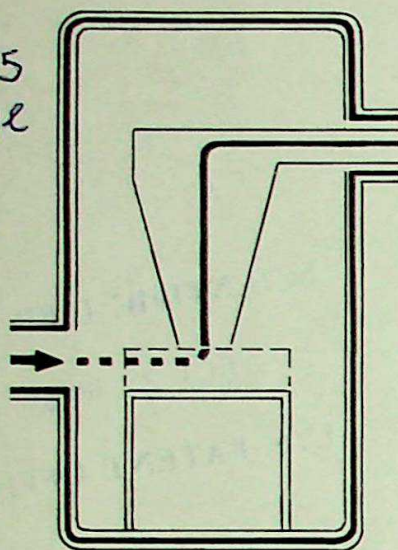
C O R P O R A T I O N

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Cartesian Manostats™

Automatic Vacuum, Pressure and Flow Controllers

Based on the Cartesian Diver principle Manostats are fully automatic vacuum, pressure or flow controllers of extremely high sensitivity.*

The diver principle can be explained as follows: An inverted test tube, or diver, floating in a liquid pool is sensitive to pressure changes within, or on the outside of the diver. If the pressure on the outside is increased above the pressure within, then the diver is forced down. Conversely, if the pressure on the outside of the diver is reduced, the higher internal pressure will cause it to rise. The greater the diameter of the diver, the more sensitive it will be to minute changes in differential pressure.

The Cartesian Manostat incorporates the diver into the moving part of a valve. This valve, when introduced into a system will maintain the pressure at that value which was isolated within the interior of the float.

The Cartesian Manostat is also used as a flow-control device by applying it as a controller on the pressure difference which appears across an orifice in the flow line.

CHARACTERISTICS OF CARTESIAN MANOSTATS

Model No.	Material of Construction	Pressure Limit	Vac. Control	FUNCTION				Sensitivity (Whichever figure is greater)	Orifice Size	Orifice Size	Flow at 1 Atmosphere Pressure Differential
				Pres. Control	Flow Control	Vacuum Meas.	Vacuum Memory				
6A	Stainless Steel	80PSIG	yes	yes	yes	no	yes	$\pm 0.2\%$ or $\pm 0.2\text{mm}$	Interchangeable $\frac{1}{2}, 1, 2\text{mm}$	$\frac{1}{2}$ mm	2 liters/min
7	Glass	15PSIG**	yes	yes	yes	no	yes	$\pm 0.2\%$ or $\pm 0.2\text{mm}$	Fixed: 1mm	1 mm	8 liters/min
7A	Glass	15PSIG**	yes	yes	no	no	yes	$\pm 0.2\%$ or $\pm 0.2\text{mm}$	Fixed: 1mm	2 mm	32 liters/min
8	Anodized Aluminum	500PSIG	yes	yes	no	no	no	$\pm 0.05\%$ or $\pm 0.1\text{mm}$	Interchangeable 1, 2, 4mm	4 mm	130 liters/min
9	Glass	15PSIG**	yes	yes	yes	yes	yes	Light Float: $\pm 0.2\%$ or $\pm 0.05\text{mm}$ Heavy Float: $\pm 0.2\%$ or $\pm 0.2\text{mm}$	Fixed: 1mm		

* Reg. U.S. Pat. Off. Nos. 2482167, 27702047, 2981277, 3035600.

** Stopcock must be secured.

APPLICATIONS OF THE CARTESIAN MANOSTAT

VACUUM CONTROL

With the reference valve open, bring the system to the desired vacuum. Close the reference valve. Fine adjustments of pressure can be made through adjustment of the orifice height positioning knob.

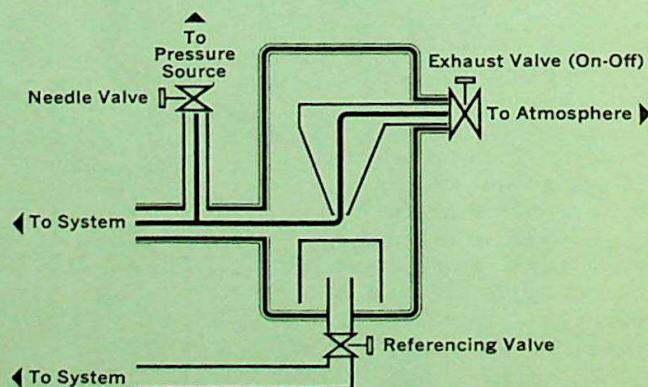
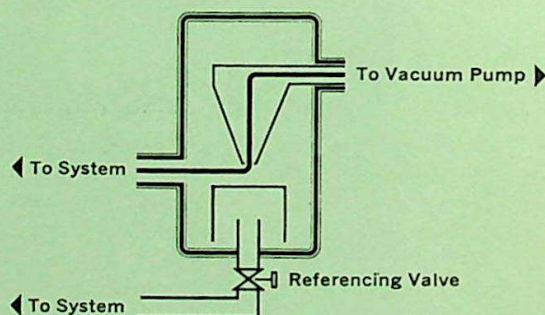
When the system pressure exceeds the desired level the diver drops, thus connecting the system to the pump. When the preset value is reached the diver rises and closes off the flow-path.

PRESSURE CONTROL

For pressure control, an auxiliary needle valve and an on-off valve are required.

1. With the exhaust valve closed and reference valve open, use the needle valve to bring the system to the desired level.
2. Close the reference valve.
3. Open the exhaust valve and adjust the needle valve so that the smallest detectable amount of gas passes through it.

When the system pressure exceeds the desired level the diver drops, freeing the orifice, thus bleeding the system pressure back to its preset value. Fine adjustments of pressure can be made by adjusting the height of the orifice.



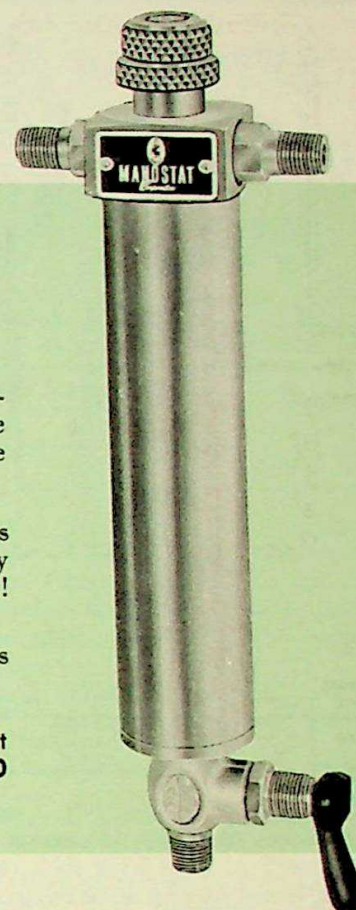
Cartesian ManostatTM #6A

The use of stainless steel throughout assures rugged performance, maximum durability and corrosion resistance. Minute changes in control pressure can be made with special vernier screw and lock nut arrangement. Just a quick flip of the toggle valve sets your control point!

Vacuum Memory: No need to reset your control point after a shutdown. This Cartesian Manostat remembers your earlier setting! Use it to control flow by adding an extra orifice in the control line. Up to 80 PSIG — No loss of sensitivity!

High Sensitivity: $\pm 0.2\%$ or $\pm 0.2\text{mm}$, whichever is greater. Three orifice sizes available (1mm orifice supplied unless otherwise specified).

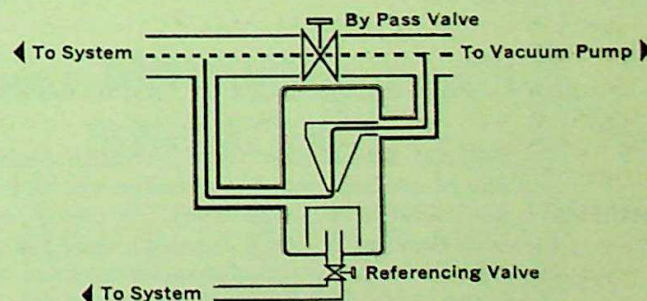
50-570 Cartesian Manostat #6A. Complete but without mercury (approx. 8 ml. required) ea. 140.00



- Cryogenic Temperature Control by Manipulation of a single adjustment knob
- Instrument Calibration ● Simulated Altitude Chambers ● Flame Photometry
- Vacuum Distillation ● Chemical Process Vacuum and Pressure Controls

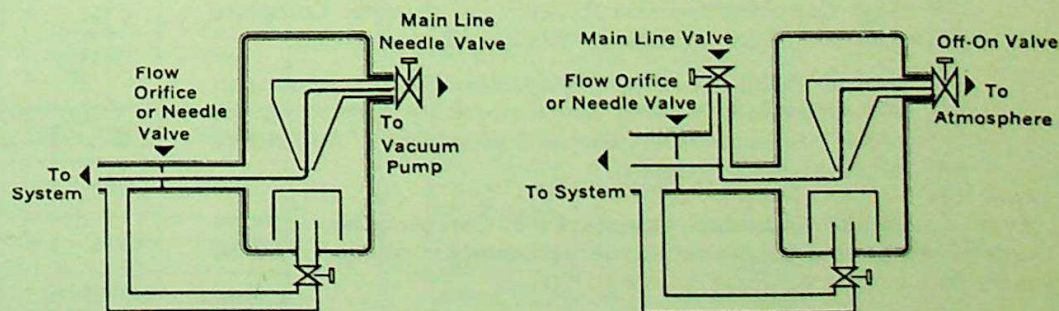
CONTROL WITH LARGE SYSTEMS USING BY-PASS

Connect the system as for vacuum operation, and insert a by-pass valve between the system and the vacuum source. In starting up the system keep the by-pass valve open until the desired pressure is reached. Close the by-pass valve and reference valve and make the fine setting of pressure by adjusting the orifice height.



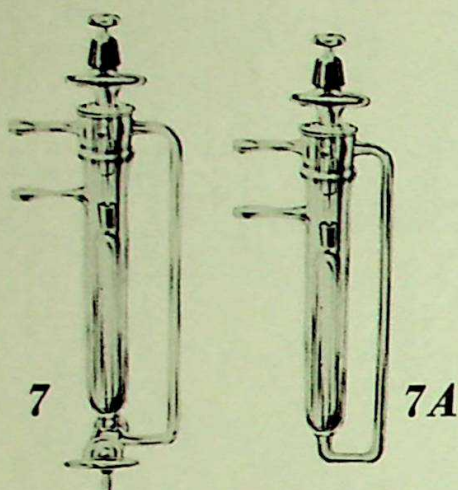
FLOW REGULATION

Most applications can be met using a fixed bleed and the Cartesian Manostat operating as a vacuum or pressure controller. In those cases where the system pressure must be a variable, a flow orifice is employed to translate flow information to a pressure. By controlling this pressure the Cartesian Manostat controls the flow.



Reprint of the article "Theory of operation of Cartesian Diver type Manostats" is available at no charge. Write for your copy.

Cartesian Manostat #7 Cartesian Manostat #7A



This Cartesian Manostat is attractively priced for most control applications.

High Sensitivity: $\pm 0.2\%$ or $\pm 0.2\text{mm}$, whichever is greater.

Vacuum Memory: Your set point is remembered. No need to reset with each run. Glass construction unaffected by corrosive environment. Wide range of adjustments easily made by changing orifice position.

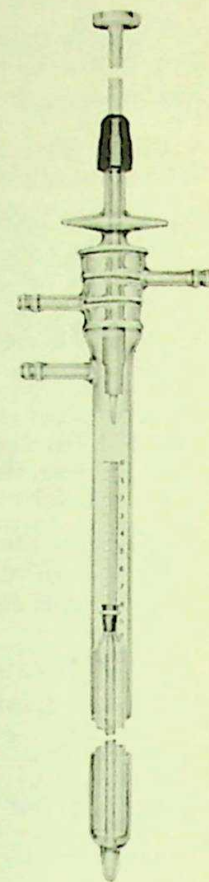
50-550 Cartesian Manostat #7*ea. 58.00

50-551 Cartesian Manostat #7A*ea. 49.25

*Supplied without mercury approx. 12 ml. required.

Cartesian Manostat #9

With this Cartesian Manostat you can measure vacuums from zero to 100mm; it controls your pressure at the same time! If you have no measurement requirement your Cartesian Manostat will control within the normal vacuum ranges. Glass construction allows excellent visibility — pressure scale printed directly on instrument. This Cartesian Manostat is available with two floats — 0 to 10 and 0 to 100mm. In both cases readings are made over the full length of a 100mm scale. It remembers your setting — set it and forget it!



Sensitivity and Capacity: With the light float, $\pm 0.2\%$ or $\pm 0.05\text{mm}$, whichever is greater. With the heavy float, $\pm 0.2\%$ or $\pm 0.2\text{mm}$, whichever is greater.

50-560 Cartesian Manostat #9. Complete with Light Heavy Floats *ea. 112.00

50-561 Cartesian Manostat #9 with Light Float only, 0-10 mm *ea. 104.00

50-562 Cartesian Manostat #9 with Heavy Float only, 0-100 mm *ea. 97.50

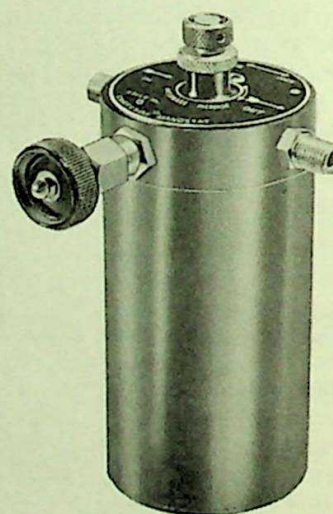
Cartesian Manostat #8

Highest Sensitivity: This Cartesian Manostat will hold vacuums and positive pressures to $\pm 0.05\%$ or $\pm 0.1\text{mm}$, whichever is greater! The use of aluminum body and float provides a rugged, light-weight instrument. This Cartesian Manostat is designed to be used at pressures up to 500 P.S.I.A.

High Capacity: Up to 130 liters per minute. Complete with 3 interchangeable orifices, 1, 2 and 4 mm.

Special Application in Cryogenics: The #8 Manostat will regulate cryogenic temperature by controlling the vapor pressure of cryogenic liquid gases. Additional information on request.

50-580 Cartesian Manostat #8. Complete but without mercury (approx. 75 ml. required)ea. 155.00



HIGH PRECISION McLEOD GAUGES

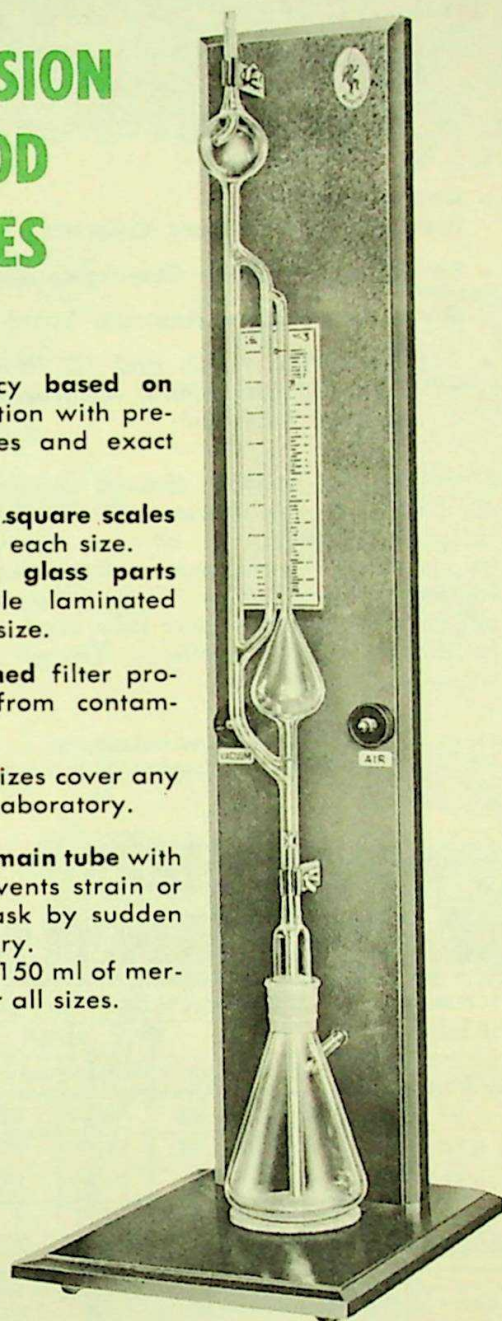
Intrinsic accuracy based on absolute calibration with precision bore tubes and exact volume cut-off.

Both linear and square scales extend range of each size. **Interchangeable glass parts** with replaceable laminated scales for each size.

Specially designed filter protects mercury from contamination.

Wide range of sizes cover any application in laboratory.

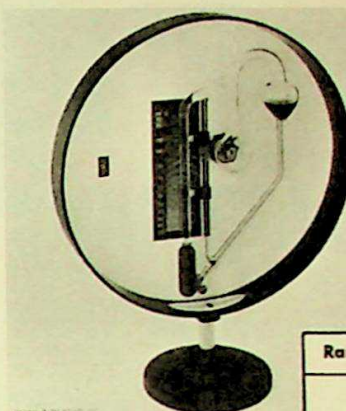
Construction of main tube with constriction prevents strain or breakage of flask by sudden return of mercury. Approximately 150 ml of mercury needed for all sizes.



Cat. No. Complete With Stand But W. O. Hg	Gauge No.	Range		Price Each
		Linear MM.	Square Microns	
41-483	1	.005 - 0.2	.005 - 200	129.80
41-484	2	.02 - 1.0	.05 - 1,000	129.80
41-485	3	0.1 - 4.0	0.1 - 4,000	129.80
41-486	4*	0.1 - 20	10 - 20,000	129.80

*Suitable for ASTM proposed test for reduced pressure distillation of petroleum products.

TILTING McLEOD GAUGE



Range, mm	Smallest Reading, mm.
0-1	0.02
0-5	0.10
0-10	0.50

For vacuum measurement the combination of simplicity and absolute accuracy of the McLeod Gauge cannot be duplicated. Manostats' new Tilting McLeod Gauge incorporates improvements and new features which make it an unusually fine value when compared with other instruments in its price range.

Wide Range of Application — an excellent instrument for use in freeze-drying, distillation, evaporation, filtration, and other general vacuum applications.

Available in Three Ranges — 0-1 mm., 0-5 mm., and 0-10 mm. Capacity: 170 grams of mercury.

41-488-01 Tilting McLeod Gauge, range: 0-1 mm., complete with Plexiglas housing and metal stand, but without mercury ea. **59.00**

41-488-05 Tilting McLeod Gauge, same as 41-488, but with 0-5 mm. range ea. **59.00**

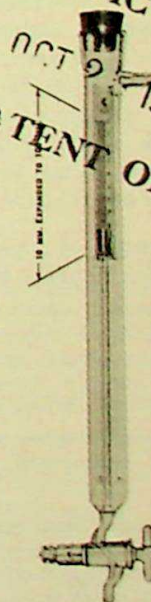
41-488-10 Tilting McLeod Gauge, same as 41-488, but with 0-10 mm. range ea. **59.00**

CARTESIAN MANOMETER

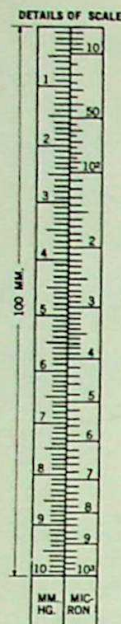
For the difficult 0-10 mm. region of absolute pressure measurement, where ordinary manometers are too coarse and McLeod gauges too inconvenient. This simple gauge magnifies the pressure readings by a factor of 10, so that 0 to 10 mm. of Hg. appear on a scale of 100 mm. in length. Adaptable for differential or absolute readings by means of a stopcock; can be read continuously and directly.

Exceptionally useful for vacuum distillations, oven drying, accurate differential pressure measurement, flow measurement, etc.

41-482 — Cartesian Manometer complete and ready for use, but without mercury (approx. 65 ml required) **45.00**



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SCALE DIVISIONS

Fine Scale (Right)
 0-10 Microns in 2 Microns
 10-100 Microns in 5 Microns
 100-400 Microns in 10 Microns
 400-1000 Microns in 20 Microns
Coarse Scale (Left)
 0 to 10 mm. in 0.1 mm.

OPEN END, PISTON TYPE McLEOD GAUGES

- Compresses Gas Between Two Mercury Columns . . .
- Eliminates Capillary Contamination . . .
- Gives Easier, More Accurate Reading!
- Positive Acting Piston and "O" Ring Seals Permit Micrometric Adjustment of Mercury Meniscus!

Simplified and accurate McLeod Gauge. No closed end capillary to become contaminated needlessly complicating comparison capillary . . . no more compounding of error in measuring—one direct reading manometer replaces former 2 tubes! Rubber "O" ring vacuum sealed piston operating in precision bore tube allows micrometric adjustment of mercury meniscus. You get most rapid, most accurate readings ever!

41-481 Vacuum gauge, open end McLeod type — complete and ready for use but without mercury (approx. 30 ml of mercury needed) ea. 84.85

ABSOLUTE AND DIFFERENTIAL MANOMETERS FOR INDUSTRY, PILOT PLANT & LABORATORY

Covers the full range of pressure and vacuum measurements in the laboratory, pilot plant and industry. With these Manometers you can achieve either absolute or differential manometric measurements with unprecedented simplicity and high precision.

Only a single reading is required to obtain a precise measurement automatically corrected for ambient temperature and reduced to a height of mercury at 0°C. Plastic, chemically resistant scales are used to compensate for changes in ambient temperature. Now the arduous task of cleaning and filling a closed end manometer is reduced to the same relatively simple process of filling an open end U-tube type.

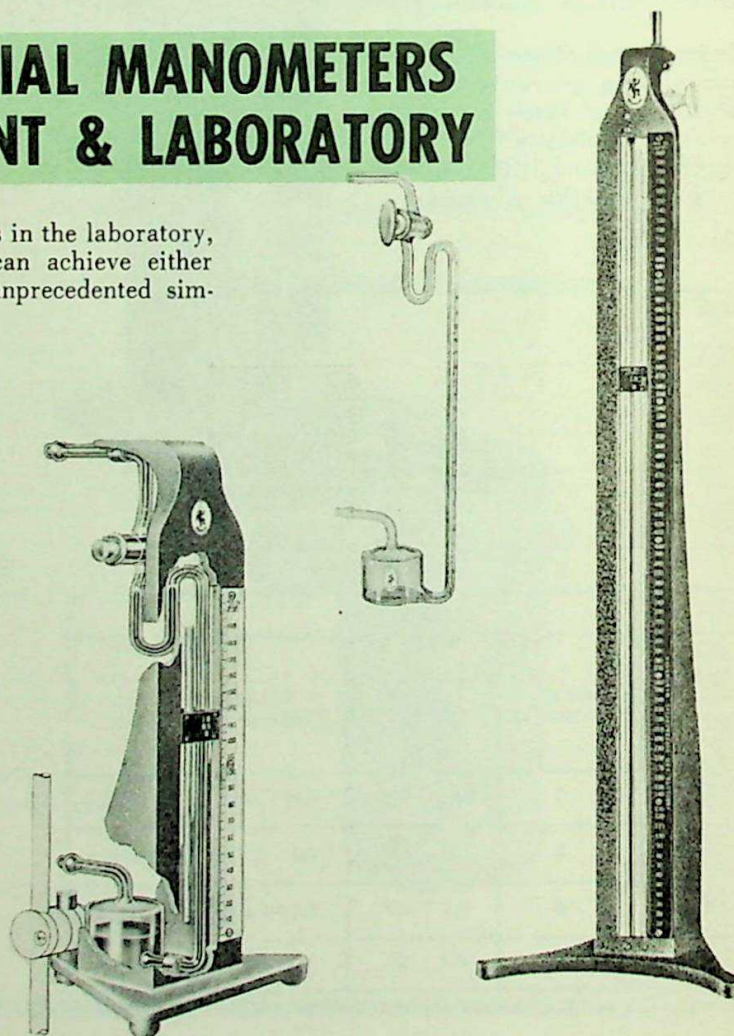
For Theory of Operation write your laboratory supply dealer for reprint bulletin.

41-381 Gauge, Manometer, — Absolute and Differential. Range: 0-200 mm., vernier reads to 0.1 mm. Complete as illustrated, made of pyrex brand glass and mounted on improved aluminum stand, but without mercury. (approx. 25 ml mercury needed) ea. 69.50

41-382 Gauge, Manometer, — Similar to 41-381-00, but glass part only, unmounted with scale directly engraved on glass. ea. 42.00

41-383 Gauge, Manometer, — Absolute and Differential. Range: 0-800 mm., vernier reads to 0.1 mm. Pyrex brand glass mounted on aluminum stand, without mercury. (approx. 35 ml of mercury needed) ea. 139.50

41-384 Gauge, Manometer, — Similar to 41-383-00, but glass part only, unmounted with scale directly engraved. ea. 66.00



NEW FROM MANOSTAT!

SOLID STATE VARISTALTIC® PUMP

FOR THE SAFEST,
MOST PRECISE
TRANSFER OF
LIQUIDS & GASES



SOLID STATE VARISTALTIC PUMP TABLE OF PERFORMANCE

for explosion-proof air type pump the table applies at 600 rpm or approximately 45 PSIG inlet air pressure.

TUBING*		UNTHROTTLED RANGE OF FLOW CC/MIN.				MAXIMUM HEAD IN FEET OF H ₂ O			
I.D.	WALL	WATER		AIR		WATER		AIR	
		minimum	maximum	minimum	maximum	suction	discharge	suction	discharge
3/8"	1/16"	20	5000	30	6000	20.3	40.7	14.4	30.5
5/16	1/16	15	4000	20	3300	46.6	91.4	48.8	28.4
1/4	1/16	10	2400	15	3000	44.6	91.4	46.6	26.2
3/16	1/16	5	1930	10	1700	46.6	91.4	44.6	20.3
1/8	1/16	3	900	.8	960	56.9	91.4	40.7	10.3

*Recommended Tubing Material: In general, Tygon Compound R-9-3603 is recommended for liquids or B-44-3 for gases. For extremely long tubing life, use silicon rubber. For specific applications consult Manostat Corporation at 20 North Moore Street, New York.

All performance figures taken with anti back flow shim in position.

- The pump is designed for essentially noiseless operation and is self-compensating to assure high torque and constant rpm despite changes in load due to pressure variations.
 - No contamination, no cleaning problems; fluids never come in contact with any part of the pump — pass only through chemically inert tubing.
 - Ideal for handling acids & other corrosive, toxic or sterile liquids & gases.
 - Pump speed can be set & will remain stable within $\pm 1\%$ over the entire range.
 - High torque solid state (4) transistor speed control.
 - Attractive, light weight two tone metal cabinet.
 - Completely safe — no moving parts exposed.
 - Reversible flow, speed remains constant in both directions without resetting control.
 - Tubing size — $\frac{1}{8}$ " I.D. through $\frac{3}{8}$ " I.D. by $\frac{1}{16}$ " wall.
 - Flow rate from 3 ml per min. to 5,000 ml per min.
 - Maximum head — 15PSI (Gauge).
 - Size — $12\frac{1}{2}$ " long x $9\frac{1}{2}$ " deep x $7\frac{1}{2}$ " high.
- 72-895-10 Solid State Varistaltic Pump 115V ea. 280.00**
72-895-10-22 Same as above but 220V ea. 295.00

VARISTALTIC PUMP™

- Uniformly variable flow rate control.
- Ideal for handling acids and other corrosive, toxic or sterile liquids.
- Completely safe — no moving parts are exposed.
- No contamination, no cleaning problems. Fluids never come in contact with any part of the pump—pass only through chemically inert tubing.
- Comes in attractive, lightweight, two tone metal cabinet.
- Explosion proof air model with precise needle valve control available for operation in areas where electricity can not be used.

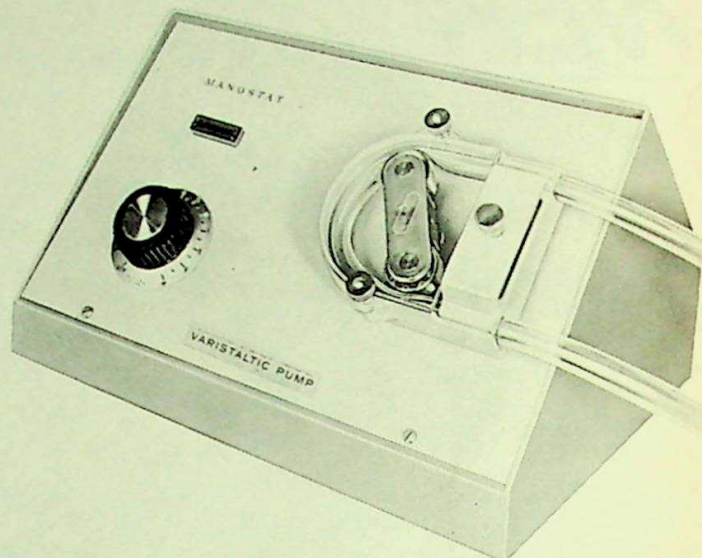
72-895 Varistaltic Pump, 115 V. AC, 50/60 cycles, complete as described, but without tubing ea. 145.00

72-895-00 22 Varistaltic Pump, 220 V. AC, 50/60 cycles, complete as described, but without tubing ea. 165.00

72-895-01 Varistaltic Pump, with explosion proof air motor, but without tubing ea. 175.00

74-995-00-20 Tygon Tubing, 3/8" I.D. x 1/16" wall Per ft. .44

Unit accommodates tubing of any I.D. from 1/8" through 3/8"x1/16" wall. This is a rugged, economical and thoroughly dependable unit. Size: 12 1/2" long x 9 1/2" deep x 7 1/2" high.



TUBING*		UNTHROTTLED RANGE OF FLOW CC/MIN.				MAXIMUM HEAD IN FEET OF H ₂ O			
		WATER		AIR		WATER		AIR	
I.D.	WALL	minimum	maximum	minimum	maximum	suction	discharge	suction	discharge
3/8"	1/16"	1,970	6,200	1,790	6,000	26.0	46.2	4.7	7.7
5/16"	1/16"	1,680	5,300	1,600	5,000	27.2	57.7	6.7	7.8
1/4"	1/16"	1,300	3,950	1,500	4,160	29.4	80.8	7.8	7.7
3/16"	1/16"	640	2,050	370	1,500	31.2	73.9	1.0	0.3
1/8"	1/16"	260**	730**	NOT RECOMMENDED		29.4	57.6		

** Requires priming

MACROSTALTIC PUMP™

Corrosives, sterile fluids, transferred in absolute safety at smooth rates up to 300 gallons per hour!

THE MANOSTAT MACROSTALTIC PUMP is ideal for handling large volumes of liquids. Excellent for applications involving corrosives, slurries, sterile or toxic liquids. This ruggedly designed unit completely eliminates contamination and cleaning problems. Fluids never come in contact with any part of the pump—pass only through chemically inert tubing.

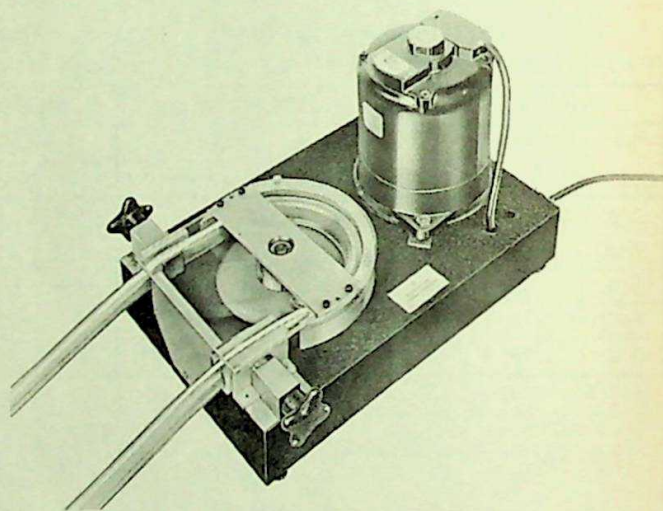
COMPLETELY SAFE—no belts, pulleys, or moving parts are exposed. Tubing can be changed quickly and easily. Unit features completely enclosed 1/4 H.P. motor (120 volts 60 cycles AC) with manual reset overload protection. Control knob provides variable flow capacity up to 300 gallons of water per hour.

DURABILITY AND LONG TUBING LIFE—In laboratory tests with the Macrostatic Pump, the tubing withstood 100 consecutive hours of pump operation.

72-895-07 Macrostatic Pump, complete as described with one set of Type A rollers. Tubing not included ea. 270.00

72-895-30 Type B Roller (interchangeable with Type A) for tubing 9/16", 5/8" or 11/16" I.D. x 3/32" wall (set of 2) 18.00

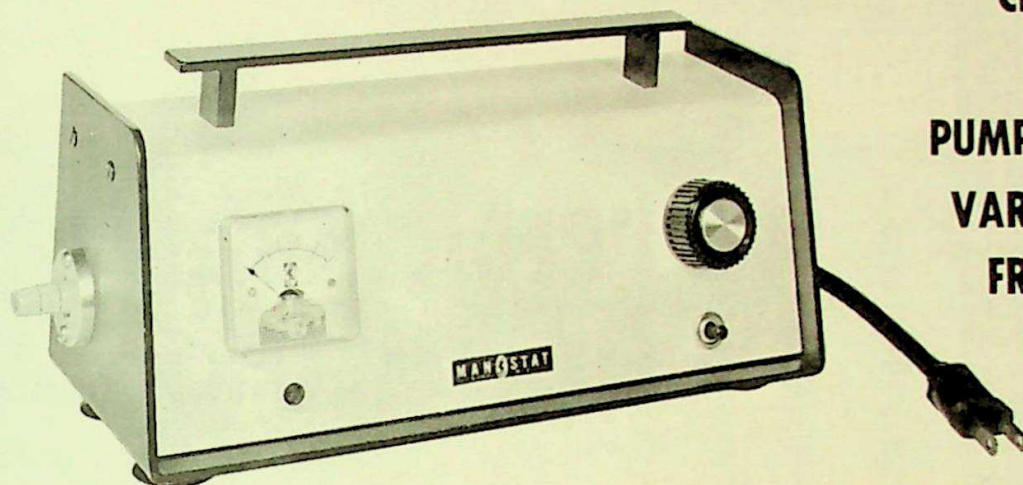
74-995-00-36 Tygon Tubing, 5/8" I.D. x 1/8" wall per foot 1.06



TUBING*		ROLLER TYPE	FLOW CC/MIN.		MAXIMUM HEAD IN FEET OF H ₂ O			
			WATER	AIR	WATER		AIR	
I.D.	WALL				suction	discharge	suction	discharge
1/2"	1/8"	A	13,700	5,800	23	65	0.2	0.2
9/16"	1/8"	A	14,600	6,500	22	68	0.2	0.2
5/8"	1/8"	A	15,100	7,250	21	69	0.4	0.4
9/16"	3/32"	B	16,100	9,400	18	52	0.9	0.8
5/8"	3/32"	B	17,400	11,600	16	54	1.0	0.8
11/16"	3/32"	B	18,600	14,000	14	55	1.0	0.8

*Recommended Tubing Material: In general, Tygon Compound R-9-3603 is recommended for liquids or B-44-3 for gases. For extremely long tubing life, use silicon rubber. For specific applications consult Manostat Corporation at 20 North Moore Street, New York.

MINISTALTIC™ PUMP



**CHEMICALLY INERT
CONTINUOUS DUTY
PUMP WITH UNIFORM
VARIABLE FLOWRATE
FROM 2 ML TO ½
GALLON / MINUTE**

Economical • Durable • Compact • Non Pulsing Flow

Ideal for handling acids, bases & other corrosive or toxic liquids.

All parts in contact with liquid are made of polyethylene (Hypalon)*

Flowrates are uniformly variable by a single control knob from 2ML to 1800 milliliters per minute

Durable, recommended for continuous around the clock pumping.

Safe, completely enclosed, no moving parts exposed

Dial type percentage flow indicator

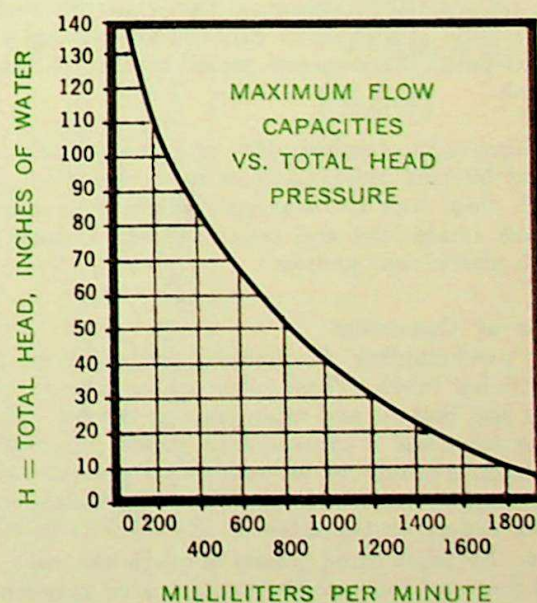
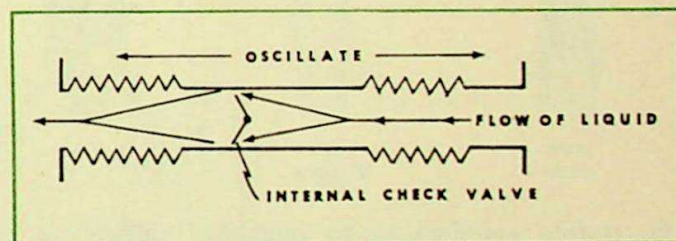
Self priming

Compact 12 in. long x 4½ in. wide x 4½ in. deep, two-tone attractive all metal cabinet. Simple to connect; hose connections are provided at each side for ¼ to ¾ I.D. tubing. Operates on 50 or 60 cycles. Weight 5 lbs.

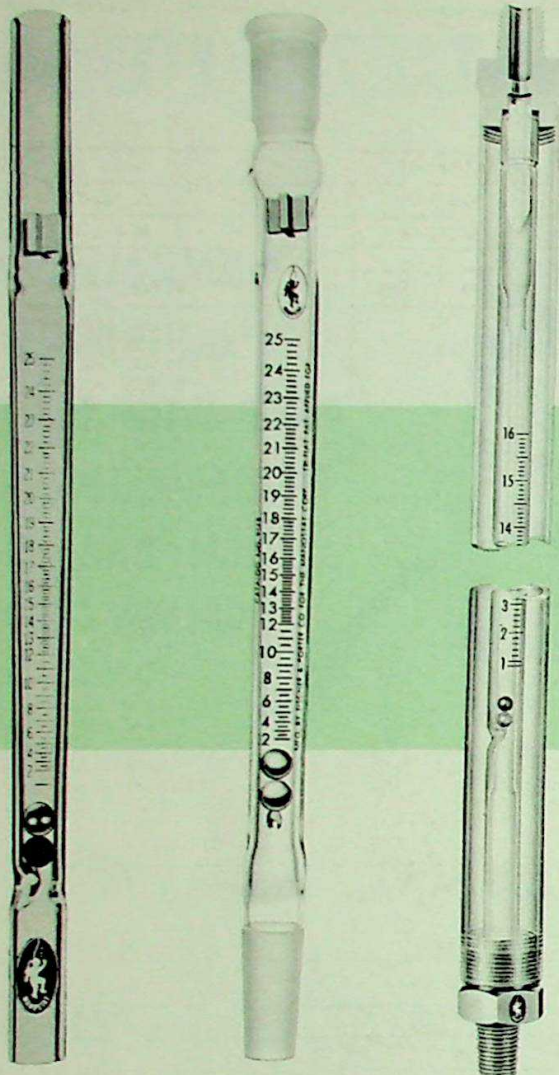
72-894-21 Ministaltic Pump 115V
72-894-51 Ministaltic Pump 220V

ea. 89.00
ea. 104.00

*DuPont TM



H = SUCTION HEAD + DISCHARGE HEAD



plain
ends

with
joints

guarded

PREDICTABILITY FLOWMETERS

Heretofore you had to do individual calibrations for each specific fluid. With the Predictability Flowmeter, you can calculate the calibration curve *directly*, without the need of the experimental calibration that was necessary in the past. These meters are accurate to within 2% of full scale.

Meters come with stainless steel and non-metallic balls, which may be used individually or in combination. They come with plain ends for hose connection, with standard taper joints (male inlet and female outlet) or plain end tubes with plastic tube guards.

Principles of Operation

The new predictability flowmeters consist of spherical floats in tri-flat tubes. These tubes are circular in cross-section at the bottom and triangular at the top. In between, the tube has a cross-section which progressively changes from a circle to an equilateral triangle whose sides are tangent to the circle. The balls which act as floats slide snugly in the tubes at all positions from top to bottom. As more fluid passes through the tube, the balls will rise and increase the annular area between the ball and the tube. The balls will come to equilibrium at a point where the weight of the ball is equal to the force

required to flow the fluid through the annular area. This force which increases with flow also decreases as the annular area increases, thus permitting the ball to find an equilibrium position in the range of the instrument.

Because of the tri-flat construction, it is possible to obtain a generalized correlation of the flow of any fluid against the readings on the meter. This correlation depends upon plotting a flow coefficient against a viscous influence number for different positions on the tube corresponding to its readings. The only information required to obtain a calibration for a given fluid is the density and viscosity of the fluid under the conditions of flow. When both floats are in the flowmeter, read either one referring to its proper column in calibration chart.

Plain Ends		With Joints		Guarded	
Cat. No.	Price	Cat. No.	Price	Cat. No.	Price
36-541-03	29.50	36-541-04	36.00	36-541-05	44.00
36-541-07	29.50	36-541-08	36.00	36-541-09	44.00
36-541-12	29.50	36-541-13	36.00	36-541-14	45.00
36-541-21	29.50	36-541-22	36.00	36-541-23	59.00
36-541-30	31.00	36-541-31	37.00	36-541-32	59.90

See next page for size and flow rate information

AIR FLOW CALIBRATION CHART

STANDARD MILLILITERS
PER MINUTE AT 1
ATMOSPHERE AND 70°F

Cat. No.	36-541-03		36-541-07		36-541-12		36-541-21		36-541-30	
	36-541-04		36-541-08		36-541-13		36-541-22		36-541-31	
	36-541-05		36-541-09		36-541-14		36-541-23		36-541-32	
Float Type	Sap-phire	Stn. Stl.	Sap-phire	Stn. Stl.	Sap-phire	Stn. Stl.	Glass	Stn. Steel	Glass	Stn. Steel
25									34,500	68,200
24									33,000	65,500
23									31,500	62,700
22									29,950	59,800
21									28,400	56,800
20			271	426			9,100	18,400	26,800	53,800
19			252	398			8,570	17,310	25,300	50,700
18			234	370			8,040	16,220	23,800	47,700
17			215	342			7,500	15,130	22,250	44,600
16			196	314	1,418	2,120	6,970	14,080	20,700	41,500
15			177	287	1,302	1,955	6,430	13,010	19,200	38,500
14			158.5	259	1,188	1,790	5,900	12,000	17,650	35,600
13			139.5	233	1,073	1,630	5,370	10,950	16,200	32,600
12			121	206	960	1,470	4,840	9,970	14,750	29,700
11			104	180	850	1,305	4,320	8,990	13,250	26,700
10			87.5	154	740	1,150	3,810	8,000	11,800	23,800
9			71.5	129	629	990	3,320	7,020	10,350	21,000
8	42.8	83.8	56.5	104	524	835	2,820	6,050	8,850	18,300
7	31.0	60.8	43.0	79	423	685	2,360	5,100	7,450	15,600
6	21.2	41.0	31.1	57	327	535	1,900	4,160	6,100	13,000
5	13.6	26.6	21.2	39	235	395	1,450	3,280	4,800	10,500
4	7.7	15.6	13.2	24.5	148	255	1,000	2,400	3,550	8,000
3	3.7	7.1	7.2	13.5	80	140	590	1,620	2,400	5,600
2.5	2.3	4.5	4.9	9.4	55	99	410	1,250	1,840	4,600
2	1.3	2.6	3.0	5.9	34	63	270	870	1,350	3,400
1.5					18.5	35	155	520		
1					7.5	15.5	70	250		



READING AT CENTER OF BALL

Cat.No.	36-541-03		36-541-07		36-541-12		36-541-21		36-541-30	
	36-541-04		36-541-08		36-541-13		36-541-22		36-541-31	
	36-541-05		36-541-09		36-541-14		36-541-23		36-541-32	
Float Type	Sap-phire	Stn. Stl.	Sap-phire	Stn. Stl.	Sap-phire	Stn. Stl.	Glass	Stn. Steel	Glass	Stn. Steel
25									805	2,070
24									770	1,995
23									732	1,910
22									695	1,820
21									659	1,730
20			4.82	10.30			201	545	622	1,635
19			4.40	9.52			188.5	512	585	1,540
18			3.98	8.75			176.5	479	548	1,440
17			3.58	7.98			164	447	510	1,340
16			3.18	7.20	35.0	59.5	152	414	472	1,245
15			2.82	6.41	32.0	54.5	139.5	382	434	1,155
14			2.46	5.62	28.9	49.5	127	350	396	1,055
13			2.13	4.89	25.8	44.3	115	318	359	965
12			1.82	4.18	22.7	39.4	102.5	287	322	875
11			1.52	3.52	19.5	34.3	90.5	256	287	785
10			1.25	2.90	16.4	29.5	78	227	252	700
9			1.01	2.33	13.4	24.8	65.5	197	217	610
8	0.573	1.350	0.78	1.81	10.5	20.3	54	168	183	525
7	0.413	0.970	0.59	1.35	8.0	16.0	43	140	152	445
6	0.283	0.657	0.43	0.97	5.6	11.8	33	112	120	360
5	0.182	0.418	0.29	0.65	3.6	7.9	23	85	90	280
4	0.106	0.240	0.185	0.40	2.2	4.9	14.5	58	62	205
3	0.052	0.119	0.100	0.22	1.1	2.6	7.5	33	37	135
2.5	0.032	0.076	0.069	0.15	0.73	1.7	5	23	25	105
2	0.0175	0.043	0.043	0.09	0.43	1.05	3	15	16	75
1.5							1.5	8		
1							0.6	3.3		



READING AT CENTER OF BALL

WATER FLOW CALIBRATION CHART

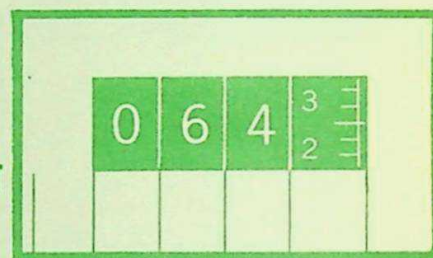
MILLILITERS PER
MINUTE AT 70°F

DIGI-PET®

PRECISION PIPETTING INSTRUMENT

Developed by Manostat Corporation, Digi-Pet is a precision liquid dispensing instrument for the laboratory. No calculations are required! Counter gives quick, highly accurate direct reading of volume dispensed. High precision and sensitivity lets you perform repeated titrations with a single filling.

PUSH-BUTTON RESET COUNTER WITH DIGITAL DIRECT READOUT

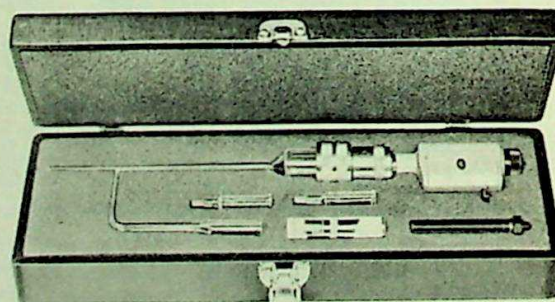


CAPACITY OF INSTRUMENT

10.0 ml. (will read)		0	6	4	24	ml.
1.0 ml. "		0	6	4	24	ml.
0.1 ml. "		0	6	4	24	ml.
0.01 ml. "	0	0	6	4	24	ml.

READING THE COUNTER

Digi-Pet's new four digit counter is read directly in the same manner in both the pipet and the buret types. Readings differ for the various sizes only in the placing of the decimal point. This diagram of the Counter shows the location of the decimal point for all the standard capacities.



Digi-Pet, Pipet Type, is Furnished Complete with Handsome Instrument Case. See Price List For Complete Information

71-640-70 Right Angle
Bent Tip, 0.1 ml 13.50

71-640-71 Right Angle
Bent Tip, 1.0 ml 13.50

71-640-72 Right Angle
Bent Tip, 10.0 ml 19.50

71-640-20 Luer Tip, 0.1
ml ea. 9.50

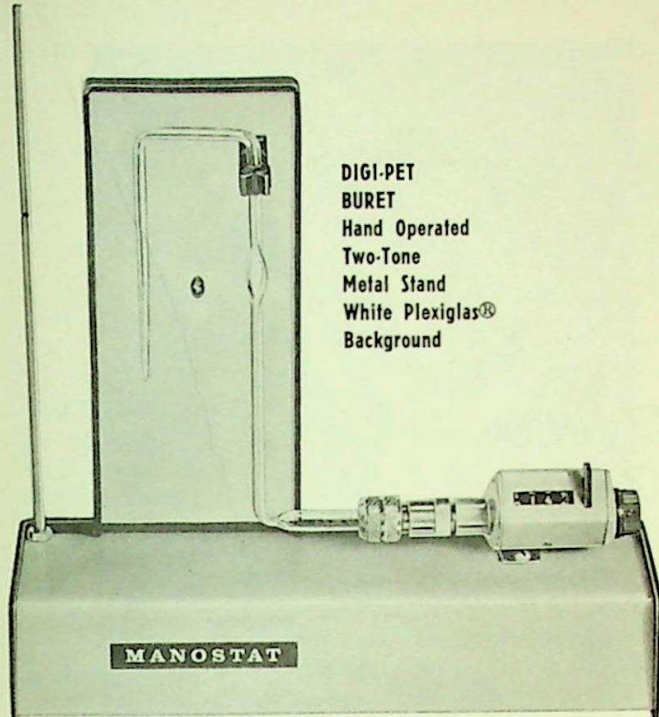
71-640-21 Luer Tip, 1.0
ml ea. 9.50

71-640-22 Luer Tip, 10.0
ml ca. 15.50

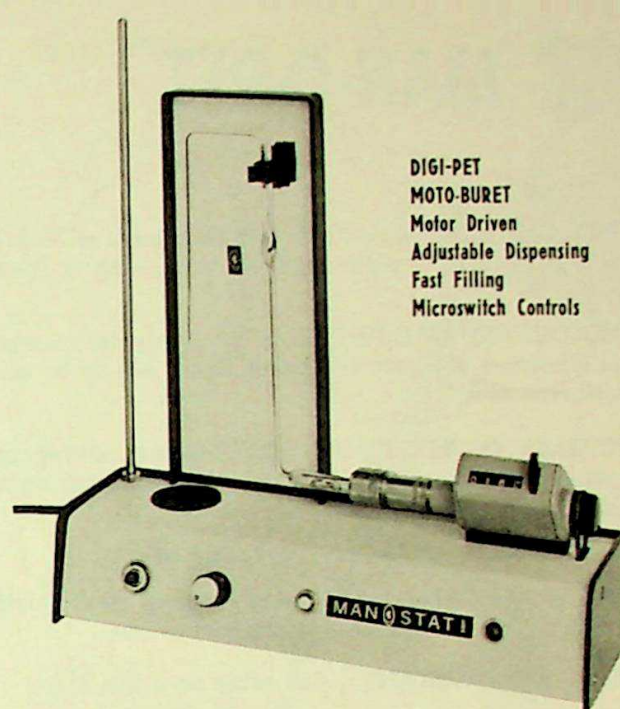
71-640-81 Luer Tip with
Luer Lock, 0.1 ml 13.50

71-640-82 Luer Tip with
Luer Lock, 1.0 ml 13.50

71-640-83 Luer Tip with
Luer Lock, 10 ml 19.50



DIGI-PET
BURET
Hand Operated
Two-Tone
Metal Stand
White Plexiglas®
Background



DIGI-PET
MOTO-BURET
Motor Driven
Adjustable Dispensing
Fast Filling
Microswitch Controls

71-631 Digi-Pet-pipet type, 0.1 ml capacity, complete with one straight glass tip, adapter for clamp mounting and instrument case. ea. 139.50

71-632 Digi-Pet-pipet type, 1.0 ml capacity, complete with one straight glass tip, adapter for clamp mounting and instrument case. ea. 139.50

71-633 Digi-Pet-pipet combination type, capacity; 0.1 ml and 1.0 ml, complete with two glass tips, adapter for clamp mounting and instrument case. ea. 152.50

71-634 Digi-Pet-pipet type, 10.0 ml capacity, complete with one straight glass tip, adapter for clamp mounting and instrument case. ea. 162.50

71-635-30 Digi-Pet, buret type, 0.1 ml capacity, complete with stand and filled with mercury. ea. 168.50

71-635-33 Digi-Pet, buret type, 0.1 ml capacity, complete with stand and filled with mercury. ea. 168.50

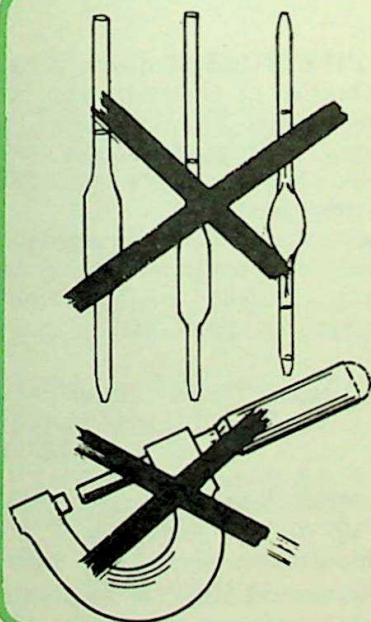
71-635-35 Digi-Pet, buret type, 1.0 ml capacity, complete with stand and filled with mercury. ea. 168.50

71-635-60 Digi-Pet, Moto-Buret, .01 ml capacity, complete with instrument stand, 115 volt, 60 cycle AC motor, and filled with mercury. ea. 225.00

71-635-63 Digi-Pet, Moto-Buret, 0.1 ml capacity, complete with stand, motor, and filled with mercury. ea. 225.00

71-635-65 Digi-Pet Moto-Buret, 1.0 ml capacity, complete with stand, motor, and filled with mercury. ea. 225.00

71-635-67 Digi-Pet Moto-Buret, Remote Control Unit, available in any of above capacities, complete with 6 foot extension cord and remote control box. ea. 250.00

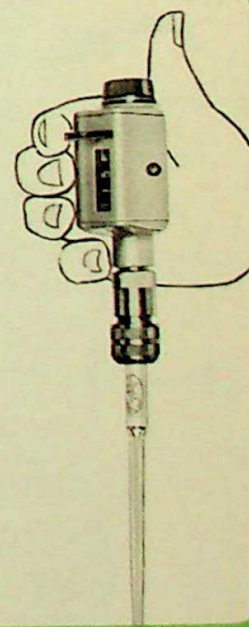


Precision pipetting instrument gives quick, highly accurate direct reading of volume dispensed!

No calculations are required!

why strain your eyes!

Say goodbye to old-fashioned micrometric burets and syringes. Digi-Pet is the **ultra-modern** way to precision liquid dispensing. No calculations are required! Counter gives quick, highly accurate direct reading of volume dispensed. High precision and sensitivity lets you perform repeated titrations with a single filling.



MAN-O-PET™

LARGE CAPACITY—2 cc-30 cc, self-contained, self-lubricating, no syringe or pipet required, no sticking or freezing.

VERSATILITY—MAN-O-PET is a precision instrument, ideal whenever a preset volume of liquid has to be dispensed repeatedly.

ACCURACY OF REPETITION $\pm 1\%$, volume, setting by micrometer type screw, no lock nuts to tighten, setting is maintained by spring action.

AUTOCCLAVABLE—entire unit, including tubing.

SMOOTH ACTION—teflon* coated stainless steel barrel and teflon glide ring assure smooth easy action.

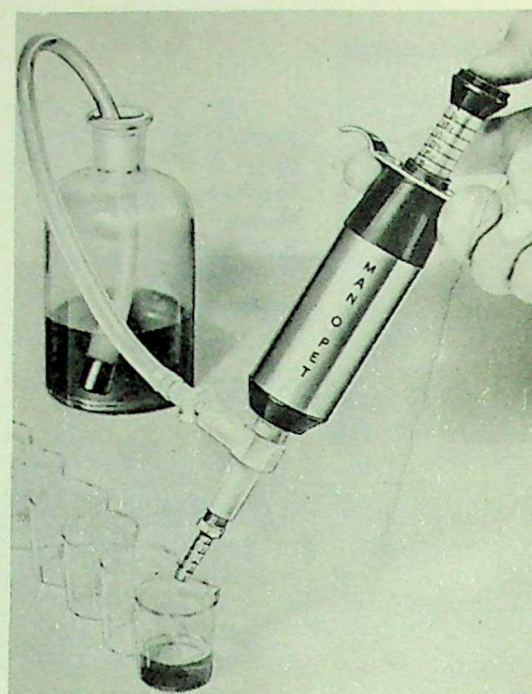
CHEMICALLY RESISTANT — See table on page 31.

SAFE— Eliminates mouth suction.

QUICK—simple action. Push to dispense, release to fill.

CONVENIENT—suitable for one hand or two handed operation. Can be mounted on stand with standard clamps. Small handed persons can operate it without stretching their hands.

FLEXIBLE—light—unit does not need to be attached to container.



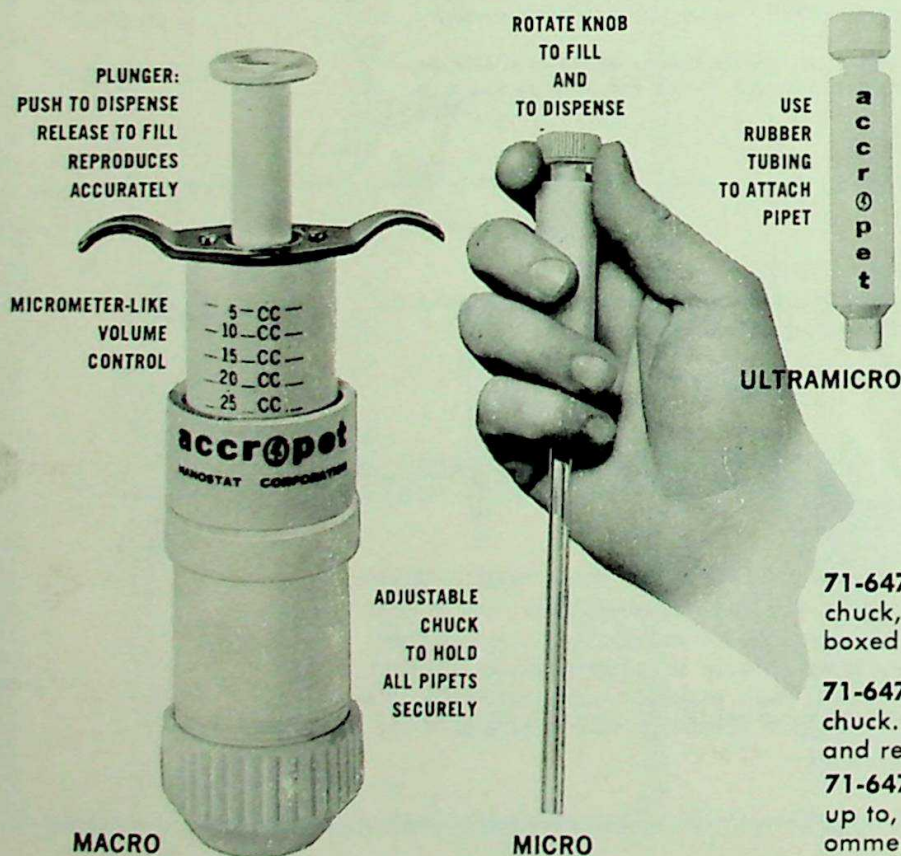
SIMPLE TO CLEAN—just flush with cleaning liquid.

VALVE—two way unique combination of flap and ball principle. Self-priming. Has large capacity, made of durable inert autoclavable plastic.

TUBING—has metal sinker attached and is autoclavable.

71-646-01 MAN-O-PET complete with two way valve, tubing and sinker ea. **27.95**

*DuPont TM



ACCROPET® PIPETTORS

ACCROPET PIPETTORS eliminate dangers and possibilities of contamination inherent in conventional pipetting methods. Compact construction provides simple one-hand operation, giving accurate discharge and filling at great speeds.

Made of high-temperature polypropylene which can withstand temperatures up to 250°F., "O" ring construction gives highly accurate, positive, leak-proof action.

71-647-05 Macro Accropet with adjustable chuck, for pipetes 2 to 25 ml., individually boxed ea. **12.00**

71-647-03 Accropet, Micro Size with adjustable chuck. For all pipets up to, and including 2 ml, and red and white blood pipets ea. **4.95**

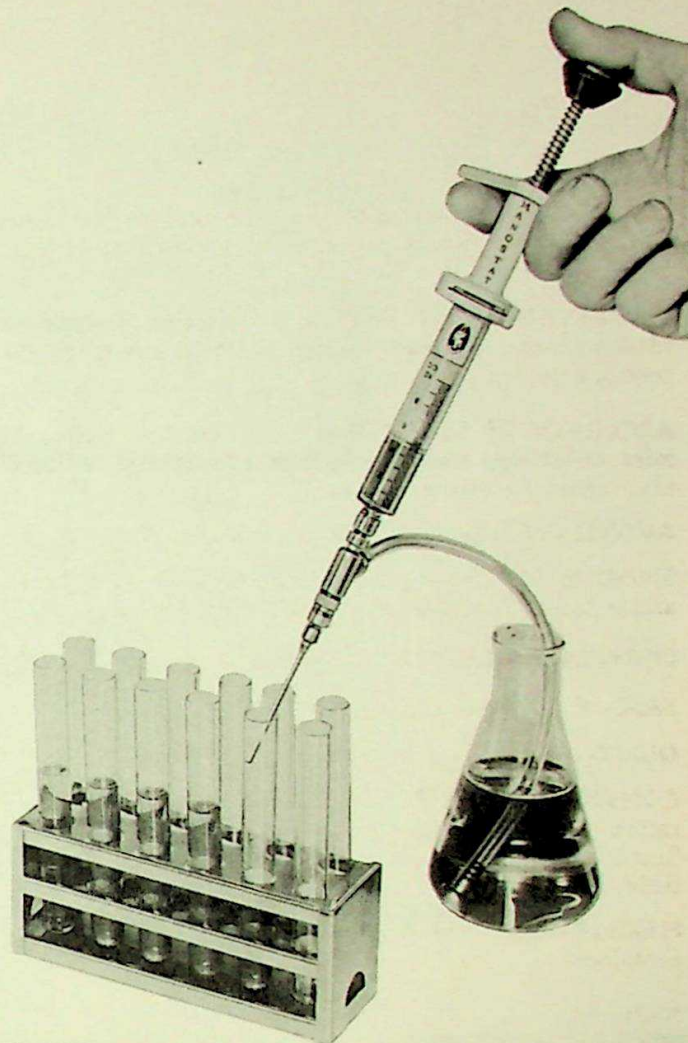
71-647-01 Accropet, Ultramicro Size. For all pipets up to, and including 2/10 ml, and especially recommended for lambdapettes ea. **3.50**

MINI-PET®

The Mini-Pet is a precision instrument to use wherever a preset volume of liquid has to be dispensed. Technicians in research, clinical and industrial laboratories can now dispense any or all of the acids and solvent listed in the Chemical Resistance Chart (page 31).

The Mini-Pet is designed with a bayonet type lock and Luer locks for ease of assembly and disassembly.

- Adjustable over entire range. Select volume by micrometer type screw.
- Self locking at set volume.
- Smooth effortless operation.
- Push to dispense, release to fill.
- Autoclavable.
- Available in 10, 2, 1 ml (tuberculin type syringe) capacities.
- Repeatability $\pm 0.5\%$.

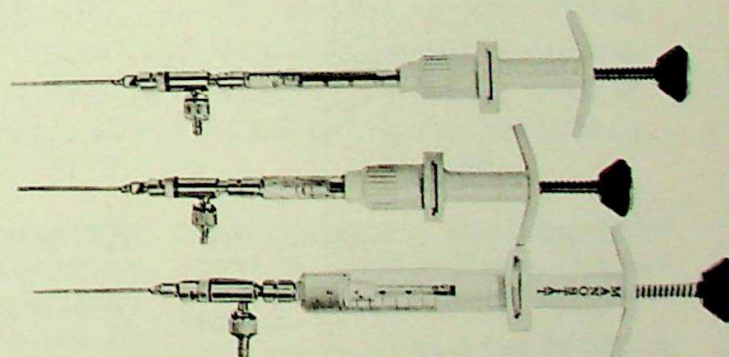


APPLICATIONS:

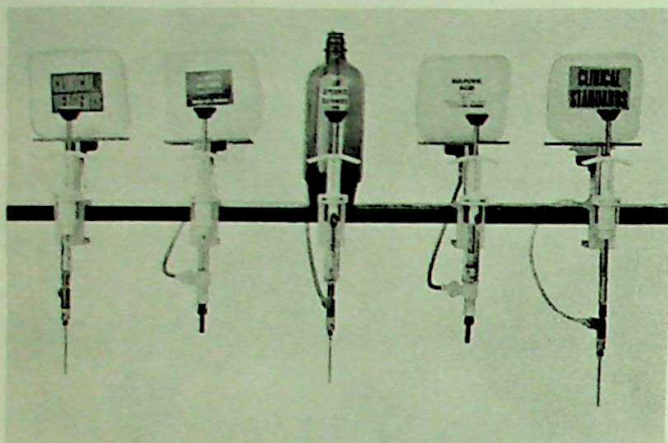
1. Pipeting
2. Tissue culture
3. Dispensing radioactive solutions
4. Catalyst dispensing (epoxy)
5. Enzyme assays
6. Column chromatography
7. Dilutions
8. Dispensing solvents
9. Filling ampules and test tubes
10. Clinical procedures

SIZE	SCALE DIVIS.	STD AQUEOUS		SOLVENTS		ACID	
		Catalog No.	Price:	Catalog No.	Price:	Catalog No.	Price:
1 ML	0.01 ML	71-648-20	24.50	71-648-25	27.50	71-648-30	27.50
2 ML	0.1 ML	71-648-35	21.50	71-648-40	24.50	71-648-45	24.50
10 ML	0.2 ML	71-648-51	21.50	71-648-51-01	24.50	71-648-51-02	24.50

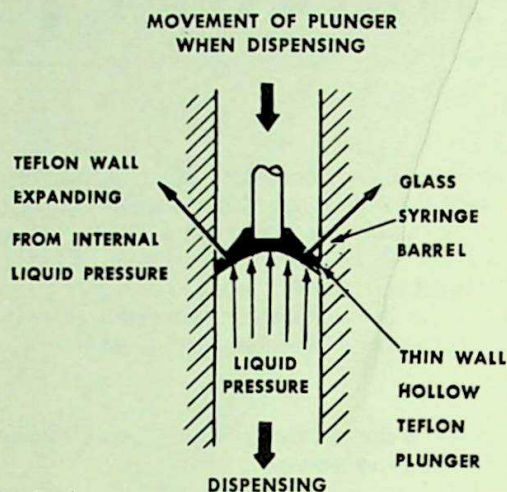
Price also includes valve, tubing, sinker and cannula (cannula not available for Acid unit)



A Typical Laboratory Setup of Minipets

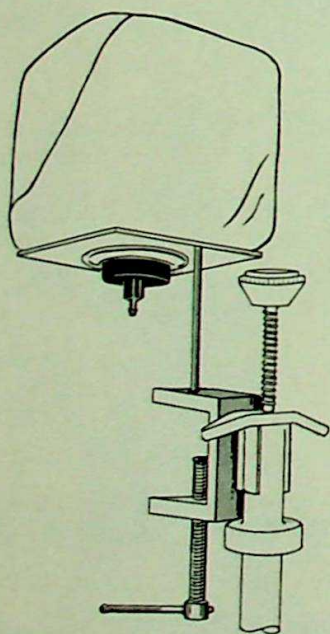


How the Exclusive * Minipet Teflon Plunger Works



- POSITIVE SEAL
- EASY SLIDE
- INERT TEFLON GLASS CONTACT ONLY
- AUTOCLAVABLE
- SELF LUBRICATING (NO GREASE CONTAMINATION)
- NO FREEZING

MINI-PET ACCESSORIES

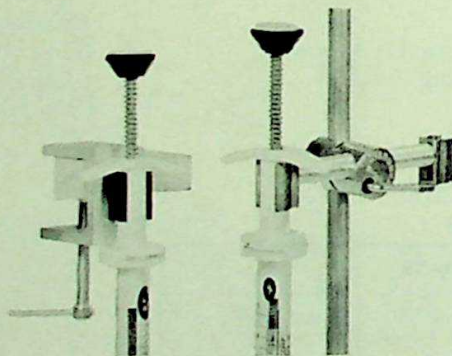


71-251-01 Combined support for Minipet and collapsible bottle with shelf clamp. For shelves up to 1 1/4" thick.

ea. 7.50

71-251-02 Same as above but with E-Z lock clamp for mounting on 1/2" dia. support rods.

ea. 5.50

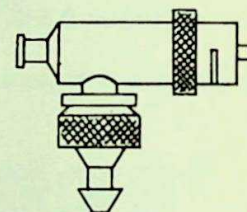


71-251-51 Minipet support Clamp for shelves up to 1 1/4" thick.

ea. 5.00

71-251-52 Same as above but with E-Z lock clamp for mounting on 1/2" dia. support rods.

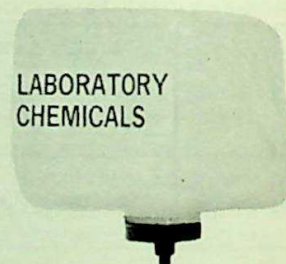
3.00



71-648-51-08 Valve, aqueous type, two-way. Chrome-plated brass, neoprene checks and Luer locks. ea. 6.50

71-648-51-25 Valve, solvent type, same as above but with teflon checks. 9.50

LABORATORY
CHEMICALS

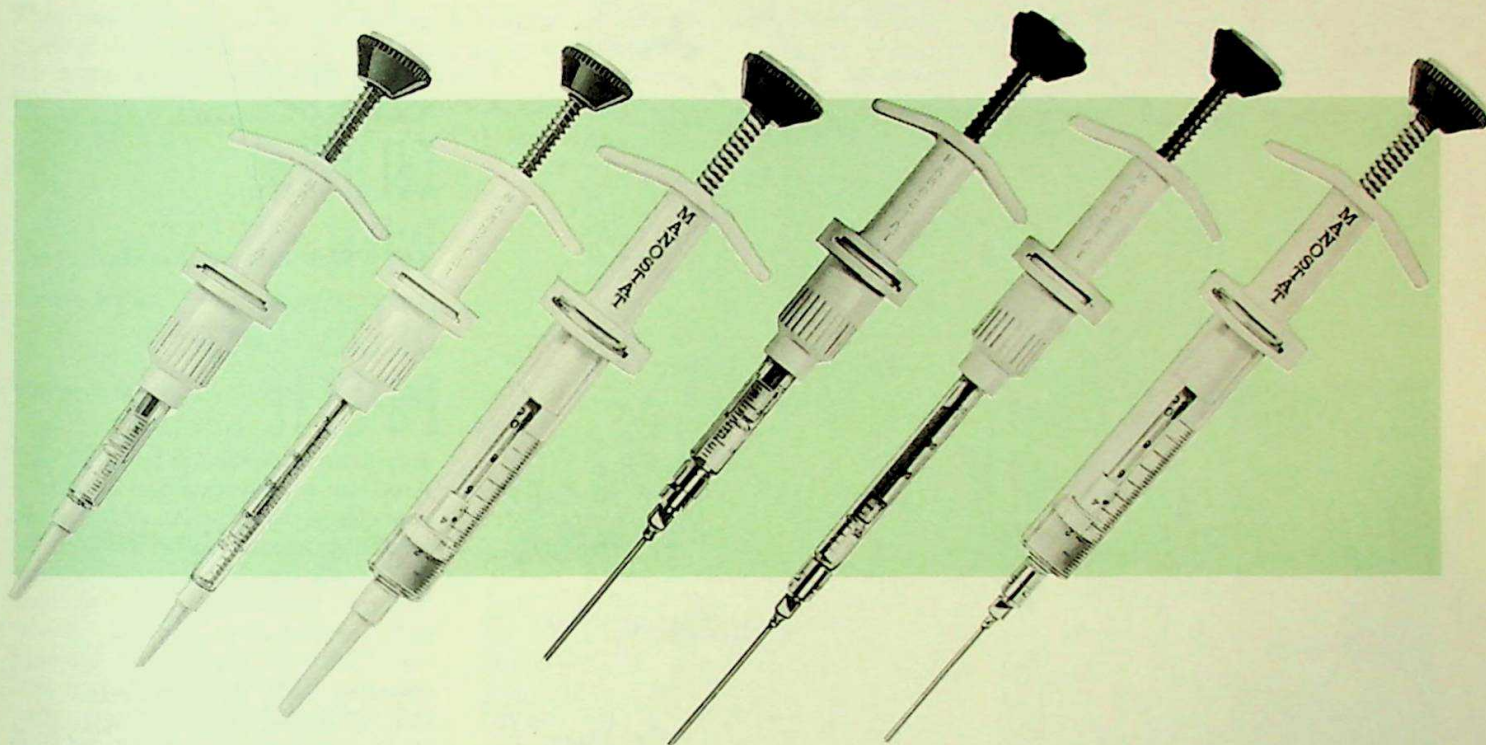


71-251-53 Collapsible polyethylene bottle with 3/16" hose connector in cap. For dispensing without contamination or evaporation. Bottle collapses as liquid is dispensed.

ea. .75

VARI-PET™

A Syringe Type Variable Pipetter With the Exclusive Easy Slide, Positive Seal, Teflon Plunger*



The Vari-Pet is a precision instrument for use with a large variety of acids** and organic solvents** and wherever a preset volume of liquid has to be pipetted. Technicians in research, clinical and industrial laboratories can now pipet any or all acids and solvents with accuracy and safety.

Manostat's exclusive easy slide, positive seal, Teflon plunger eliminates all freezing and sticking of the plunger in the barrel. It also insures the user of effortless operation.

The Vari-Pet is designed with a bayonet type lock and Luer fittings for ease of assembly and disassembly. Completely autoclavable, the Vari-Pet comes in three models and sizes: 1ML in 0.01ML divisions, 2ML in 0.1ML division and 10ML in 0.2ML division. Repeatability $\pm 0.5\%$. Accuracy $\pm 0.5\%$. With Teflon tip or metal luer lock tip.

*T.M. DuPont

**Consult chemical resistance chart page 31

APPLICATIONS

The Vari-Pet can be used for diluting, transferring and mixing any or all of the acids or organic solvents listed on our chemical resistance chart.

The Vari-Pet has been used for:

CLINICAL PROCEDURES which include the following tests: Cholesterol, P.B.I., glucose, hemoglobin

- COLUMN CHROMATOGRAPHY
- MILK TESTING
- PIPETTING PESTICIDES, RADIO ACTIVE CHEMICALS
- BIOLOGICAL INFUSIONS
- TISSUE CULTURE
- THE VARI-PET ELIMINATES HAZARDOUS MOUTH PIPETTING

VARI-PET WITH TEFLON TIP * * *

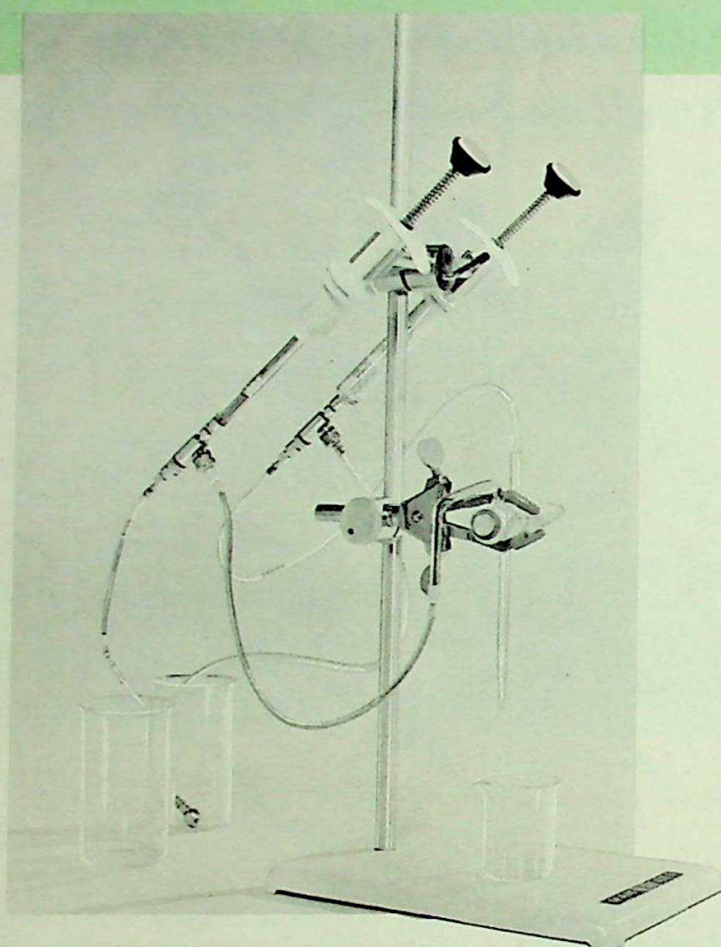
CATALOG NUMBER	SIZE	PRICE
71-250-00-01	1 ML	17.50
71-250-00-02	2 ML	17.50
71-250-00-10	10 ML	17.50

***Teflon tip will accept standard luer slip connection

VARI-PET WITH METAL LUER LOCK TIP

CATALOG NUMBER	SIZE	PRICE
71-250-01-01	1 ML	16.50
71-250-01-02	2 ML	16.50
71-250-01-10	10 ML	16.50

NEW CLINITROL™



CLINICAL DILUTOR WITH SELIGSON* PIPETTE

* Pipette devised by Dr. David Seligson as described in the American Journal of Clinical Pathology, Vol. 28, No. 2 (Aug. 1957) pp. 200-207, and Technical Bulletin of the Registry of Medical Technologists, Vol. 27, No. 7 (July 1957) pp. 152-159.

For accurate dilutions of different or same samples in succession.

Suitable for clinical determinations in routine clinical chemistry tests such as: Chloride, Urea, Total Protein, Albumin, Globulin, Zinc Turbidity, Thyol Turbidity, Sodium and Potassium, Tungstic acid filtrate, etc. The unit is applicable to any type of analysis in which a standard volume is diluted and reacted directly with a measured volume of a second liquid.

Unit permits rapid filling without adjustment to a reference mark.

Self cleaning, complete washout delivery of the contained sample by a measured amount of a second liquid by the repetitive pipette.

Eliminates the need for individual sampling pipettes and repeated filling of dilution pipettes.

Adjustable amounts of diluent can be delivered from 1 ml to 10 ml in any multiples.

Accuracy of the Seligson pipette is such that the error is less than 0.5 percent of volumes as small as 0.050 ML (see reference to Seligson paper).

The pipette is calibrated to contain a given volume and is not effected by viscosity variations of different samples.

71-741 CLINITROL, Complete unit with stand, tubing, clamps, connectors, one 1 ml std. Minipet and one 10 ml std. Minipet, but without Seligson pipette ea. **68.55**

71-74-01 CLINITROL, Complete unit same as above but with solvent Minipets ea. **74.55**

Seligson Pipettes with all glass stopcocks

71-741-05-02	0.02 ml	13.70
71-741-05-05	0.05 ml	10.45
71-741-05-10	0.10 ml	10.45
71-741-05-20	0.2 ml	10.45
71-741-05-50	0.5 ml	10.45

NEW

DILUTROL™

A completely automatic pushbutton operated dual head diluting apparatus.

This instrument picks up a preset volume of sample during the first half of the diluting cycle and dispenses the same sample and a preset volume of diluent during the second half of the cycle. Volumetric adjustments are

easily made by turning the self-locking knobs of the sample and diluent syringes. The proper cycling speed may be selected by switching to either "FAST" or "SLOW". Optional footswitch available.

Available Capacities

Sample Syringe: 10 to 500 Microliters (Lambdas)

50 Microliters to 1.0 Milliliters

Diluent Syringe: 10 Milliliters max. setting

The Dilutrol handles the most concentrated acids, bases, organic and chlorinated solvents since all parts in contact with liquids are constructed of Teflon* and glass. (exception: 500 microliter syringe which utilizes a stainless steel piston.) Completely enclosed cabinet and Plexiglas** shield provide protection against splashes and spilling.

The heart of the system is the exclusive Teflon—glass check valve and piston system***.

The removable pipetting head is mounted conveniently at the side of the cabinet. It rotates through 120 Deg. and may be positioned vertically up and down. When necessary, the pipetting head can be removed from the cabinet and dilutions may be performed up to 4 feet away simply by pressing the built in pushbutton (see photograph).

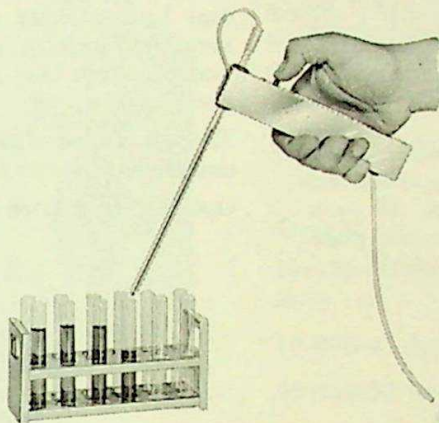
The Teflon - glass design eliminates the danger of contamination from lubrication.

APPLICATIONS

Where accurate dilutions of different or same samples are required, especially in the Biomedical, Pathological, Pharmaceutical and Industrial Fields.

Clinical

Determinations in routine chemistry tests such as Chloride, Urea, Total Protein, Albumin, Globulin, Zinc Turbidity, Thyol Turbidity, Sodium and Potassium, Tungstic Acid Filtrate, Hemoglobin, blood dilutions for white and red cell counts, etc.



SPECIFICATIONS

Dilution Ratio
1,000:1

Range

- (a) Sample: 10 to 500 Microliters
or
50 Microliters to 1.0 milliliter
(b) Diluent: Up to 10 Milliliters

Accuracy:

Sample $\pm 0.5\%$
or
Diluent $\pm 0.5\%$

Dimensions

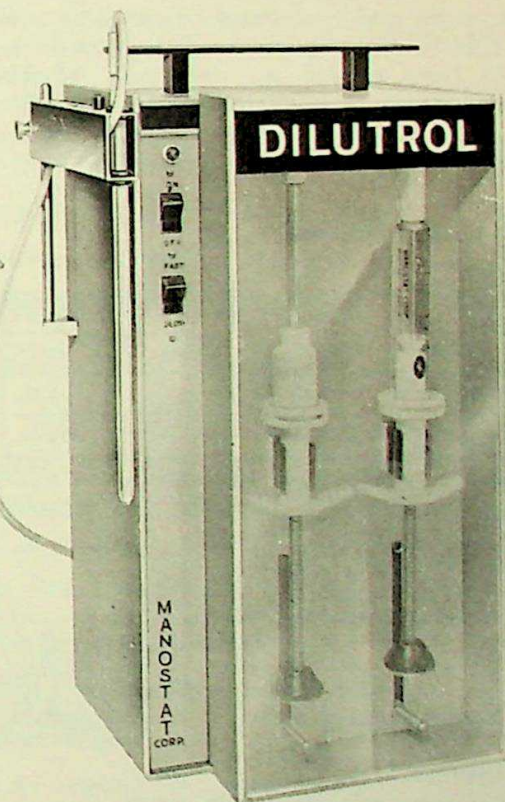
14 in. high x 7 in. deep x 9 in. wide

Weight

approx. 18 lbs.

Speed

Fast — 3 seconds (complete cycle)
Slow — 5 seconds (" ")



*DuPont Trademark

**Rohm & Haas Trademark

***Pat. Pending

PRICES

71-742-00-10 Dilutrol, 115 volts, 60 cycles, supplied with 1.0 ML sample syringe, 10.0 ML diluent syringe, pipetting head and tip.	ea. 265.00
71-742-00-11 Same as 71-742-00-10 but 500 Microliter sample and 10.0 ML diluent syringes	ea. 280.00
71-742-01-05 500 Microliter sample syringe	ea. 31.00
71-742-01-15 1.0 Milliliter sample syringe	ea. 16.00
71-742-01-25 10 Milliliter diluent syringe	ea. 16.00
71-742-03 Foot switch	ea. 10.00

NEW

DUOPET™

A completely automatic pushbutton operated dual head dispensing apparatus.

GENERAL DESCRIPTION

Duopet is a completely automatic pushbutton operated, dual head pipetting apparatus. It is used to automatically pipet one or two chemicals, mixed in previously adjusted accurately reproducible volumes.

Two syringes may be used in combinations of one 1 ml and one 10 ml, two 1 ml or two 10 ml capacities. Independently adjustable volumes are set by turning a self-locking knob on the metering syringes. If desired, a single syringe of either capacity may be used.

The proper speed is selected by switching to either "FAST" or "SLOW". The Duopet handles the most concentrated acids, bases, organic and chlorinated solvents. All parts in contact with liquids are constructed of Teflon and glass. Completely enclosed cabinet and Plexiglas* shield provide protection against splashes and spilling.

The heart of the system is the exclusive Teflon**-glass check valve and piston system***.

The removeable pipetting head is mounted conveniently at the side of the cabinet. It rotates through 120 Deg. and may be positioned vertically up and down. When necessary, the pipetting head can be removed from the cabinet and pipetting may be performed up to 4 feet away by pressing the built in pushbutton (see photograph).

The all Teflon-glass design, eliminates any danger of contamination from lubrication.

Optional footswitch is available.

SPECIFICATIONS

CAPACITY

CAT.	SYRINGE #1	SYRINGE #2	COMBINED
71-743-00-11	0.1-1 ML	0.1-1 ML	0.1-2 ML
71-743-00-10	0.1-1 ML	0.5-10 ML	0.1-11 ML
71-743-00-12	0.5-10 ML	0.5-10 ML	0.5-20 ML

Accuracy: $\pm 0.5\%$ Dimensions 14 in. x 9 in.

Speed: x 7 in. deep

Fast: 2.0 seconds/stroke Weight: approx. 18 lbs.

Slow: 3.5 seconds/stroke

APPLICATIONS

In General

Where automatic, repeatable pipetting of sterile, toxic or chemically aggressive liquids is to be done rapidly and accurately.

Laboratory

Serological reagents for syphilis tests, addition of media to tissue culture cells and substrates to chemical assays of cells, enzyme assays, radioactive solutions, colorimetric work, etc.

Pharmaceutical

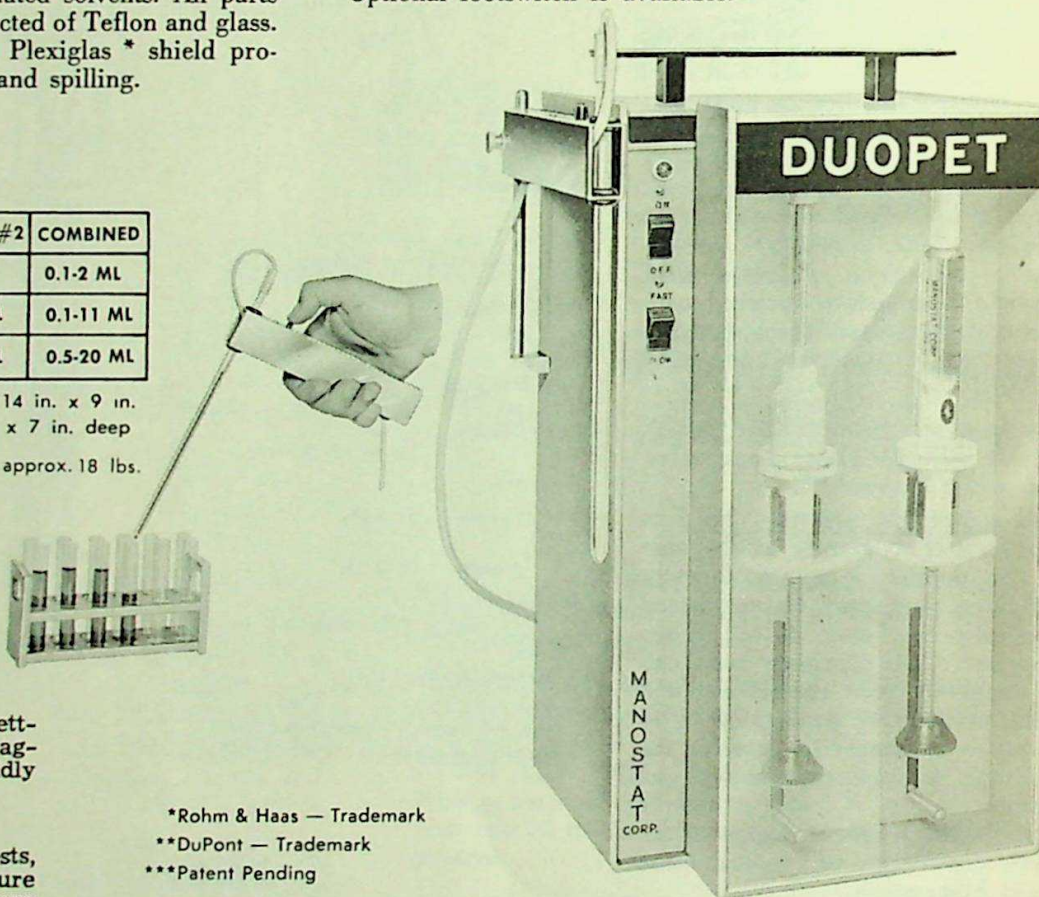
Automatic filling of preparations, chemicals, etc.

Cosmetics

Filling narrow mouthed bottles and vials, etc.

Chemistry

Polymerization reaction, catalyst pipetting, chemical packaging, etc.



*Rohm & Haas — Trademark

**DuPont — Trademark

***Patent Pending

PRICES

71-743-00-10 Duopet, 115 volts, 60 cycles, supplied with 1.0 ML and 10 ML syringes, pipetting head and tip. ea. **286.00**

71-743-00-11 Same as 71-743-00-10 but supplied with two 1.0 ML syringes ea. **286.00**

71-743-00-12 Same as 71-743-00-10 but supplied with two 10.0 ML syringes ea. **286.00**

71-742-01-15 1.0 Milliliter syringe ea. **16.00**

71-742-01-25 10.0 Milliliter syringe ea. **16.00**

71-742-03 Foot switch ea. **10.00**

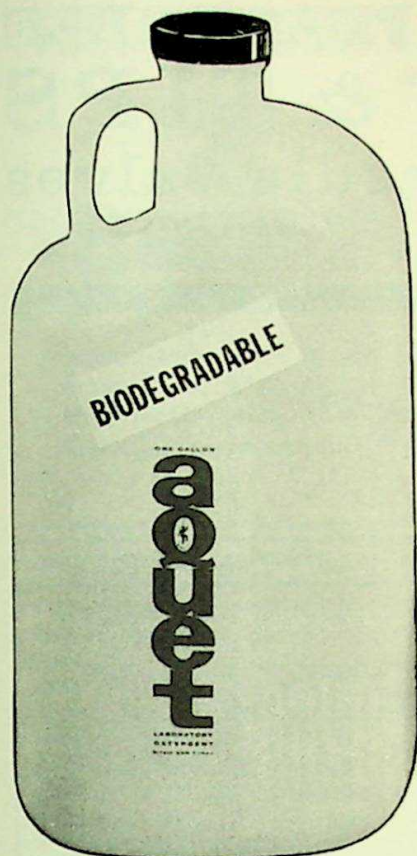
AQUET®

**LIQUID DETERGENT WITH
NEUTRAL PH NON-IONIC**

NEW... BIODEGRADABLE*

A very effective wetting agent and detergent for laboratory glassware and optics. Diluted to a 1% solution, it quickly and effectively removes surface film and grease to permit perfect and complete drainage of burette and volumetric flask liquids. Its mild but complete detergent action will not mar, etch or frost surfaces of lenses, cover glasses, spectrophotometer cells, etc. With the 1 gal. container you receive a reusable squeeze-bottle dispenser.

- | | |
|--|------------|
| 19-090-03 Aquet in 1 gallon polyethylene bottle with 1 pint disp. bottle | ea. 6.50 |
| Case of (4) 1 gallon with dispenser | 25.00 |
| 19-090-05 Aquet in 5 gallon polyethylene reusable Jerry can | ea. 22.25 |
| 19-090-51 Aquet in 55 gallon drum | ea. 220.00 |
| 19-090-52 Squeeze bottle only, with cap | ea. 1.25 |



CHROMERGE®

CHROMIC SULPHURIC ACID SOLUTION

**OBSOLETE OLD, CUMBERSOME METHODS
OF CLEANING ALL TYPES OF LABWARE!**

1. Eliminates danger of previous methods of preparation—no more tedious, unsatisfactory boiling sulphuric acid with potassium dichromate!
2. Produces a more powerful cleaning solution.
3. Protects glass surfaces.
4. Preserves the capacity of volumetric ware.
5. Gives a perfect meniscus for precise volumetric work.
6. Is chemically and bacteriologically clean.
7. Removes stubborn deposits that resisted other cleaners.
8. Saves time . . . because you do the mixing job in 30 seconds!

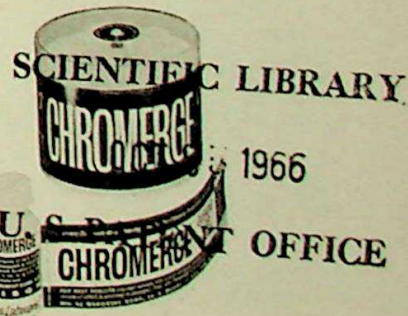
19-089-01

PACKAGE of six 1 ounce bottles of CHROMERGE
..... per pkg. 5.95

CASE of 4 packages of CHROMERGE
..... per case 21.00



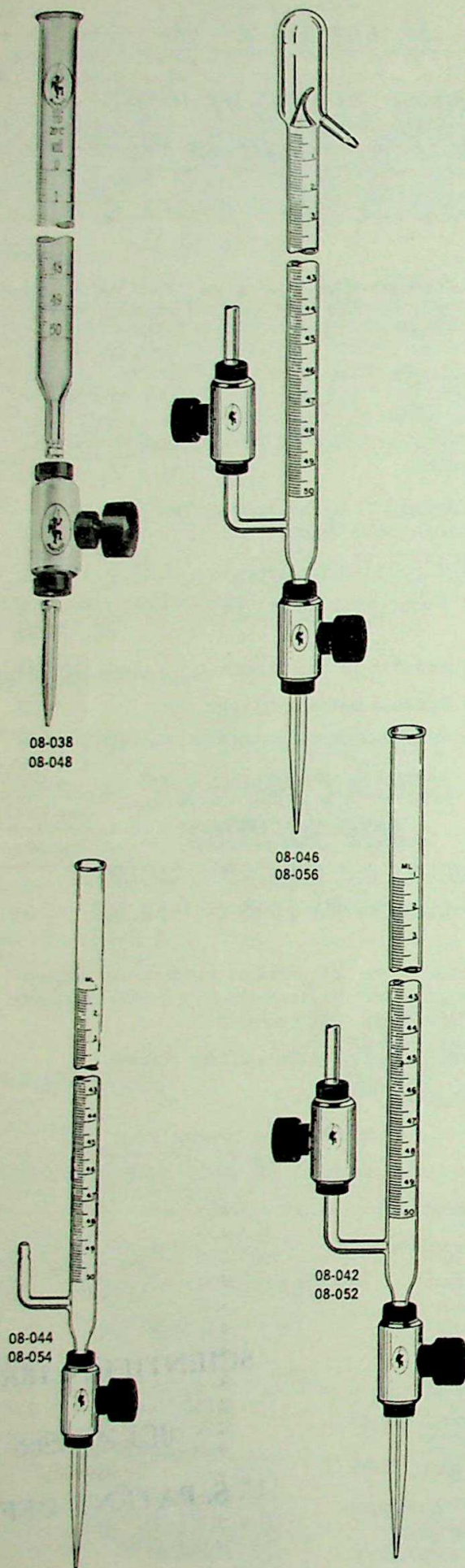
You simply add the 1 ounce bottle of CHROMERGE to a standard 9 lb. container of concentrated sulphuric acid. shake well . . . and you have a super-effective chromic-sulphuric acid solution. A suitable label is supplied to paste over the sulfuric acid container



MODULAR REPLACEABLE BURETS* & TIPS

with Teflon** Needle Valves
(2mm., Catalog No. 78-425-01)

- Replaceable glassware and tips
- Fine point control with needle valve
- Eliminates stopcocks
- No stopcock freezing or grease contamination
- Easy cleaning
- Glassware is interchangeable
- Convenient for right and left handed operators.

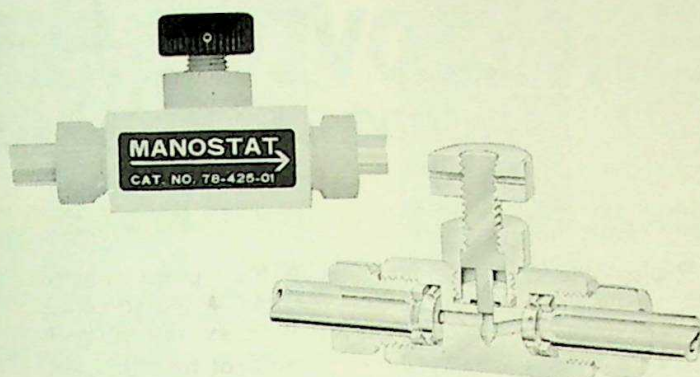


CATALOG NO.	DESCRIPTION	CAPACITY	SUBDIVISIONS	PRICE
08-048-00-15	Needle Valve Buret, MICRO.	0.5ml	.001ml	17.60
08-048-00-25		1.0	.002	17.60
08-048-00-30		2.5	.005	18.20
08-048-00-50		5.0	.010	17.60
08-052-00-15	Needle Valve Buret with side arm filling, MICRO, complete with two needle valves.	0.5ml	.001ml	32.95
08-052-00-25		1.0	.002	32.95
08-052-00-30		2.5	.005	32.95
08-052-00-50		5.0	.010	32.95
08-054-00-15	Needle Valve Buret with hose connection, side arm, MICRO.	0.5ml	.001ml	19.10
08-054-00-25		1.0	.002	19.10
08-054-00-30		2.5	.005	17.95
08-054-00-50		5.0	.010	17.95
08-056-00-15	Needle Valve Buret with automatic zero and side arm filling, MICRO, complete with overflow cup and two needle valves.	0.5ml	.001ml	30.85
08-056-00-25		1.0	.002	30.85
08-056-00-30		2.5	.005	30.10
08-056-00-50		5.0	.010	30.10
08-057-00	Replacement tip only, MICRO.			
08-038-00-01	Needle Valve Buret, MACRO.	10ml	.02ml	16.50
08-038-00-02		25	.05	16.50
08-038-00-05		50	0.10	16.50
08-038-00-10		100	0.20	17.50
08-042-00-01	Needle Valve Buret with side arm filling, MACRO, complete with two needle valves.	10ml	.02ml	26.50
08-042-00-02		25	.05	26.50
08-042-00-05		50	.10	26.50
08-042-00-10		100	.20	26.90
08-044-00-01	Needle Valve Buret with hose connection side arm, MACRO.	10ml	.02ml	16.85
08-044-00-02		25	.05	16.85
08-044-00-05		50	.10	16.85
08-044-00-10		100	.20	17.60
08-046-00-01	Needle Valve Buret, with automatic zero and side arm filling, MACRO, complete with overflow cup and two needle valves.	10ml	.02ml	30.15
08-046-00-02		25	.05	30.15
08-046-00-05		50	.10	30.15
08-046-00-10		100	.20	30.50
08-047-00	Replacement tip only, MACRO.			.80

* Buret tubes are Pyrex Brand glass and are accurately calibrated to Bureau of Standards tolerances.

** Du Pont trade name for polytetrafluorethylene

TEFLON NEEDLE VALVES



The Manostat Teflon* Needle Valve provides fine control for corrosive liquids and gases. More convenient than stockcocks. It eliminates freezing or grease contamination. Fluid contacts only chemically inert materials. Can be used on vacuum systems. This Teflon* Needle Valve is the key element of Manostat's new modular glassware system.

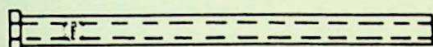
78-425-01 Teflon* Needle Valve, Small, 1/8" dia. Diamonite needle; 2mm. bore, complete with directions and ready for use, but without glass connectors** ea. **8.95**

78-425-02 Teflon Needle Valve, Large, 1/4" dia. Teflon* Needle, 4.7mm. bore, complete with directions and ready for use, but without glass connectors ea. **11.00**

*DuPont trade name for polytetrafluorethylene

**Trade name for sintered corundum

CONNECTING TUBE

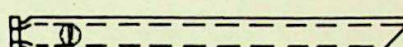


CATALOG NO.	Approx. Overall Length/mm	Assembled Length Below Valve/mm	PRICE
78-426-01	80	65	.75
78-426-02	115	100	.80
78-426-03	165	150	.80
78-426-04	215	200	1.00

Connecting Tube, Straight Tip, 8mm. O.D., same as above but for Large Needle Valve.

78-427-01	80	65	.90
78-427-02	115	100	.90
78-427-03	165	150	.90
78-427-04	215	200	1.00

DELIVERY TIP



CATALOG NO.	Approx. Overall Length/mm	Assembled Length Below Valve/mm	PRICE
78-426-51	80	65	.95
78-426-52	115	100	1.00
78-426-53	165	150	1.10
78-426-54	215	200	1.10

Delivery Tube, Angle Tip, 8mm. O.D., same as above but for Large Needle Valve.

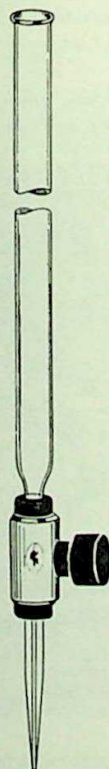
78-427-57	80	65	1.00
78-427-58	115	100	1.00
78-427-59	165	150	1.00
78-427-60	215	200	1.10

Connecting Tube, Straight Tip, 5mm. O.D., for Small Needle Valve. One end has tooled flange to fit valve and the other end is cut straight, with fire polished finish. For use as a connecting tube where a straight end finish is desired. Suitable for use as side arms on needle valve in stopcock type assemblies.

Delivery Tube, Angle Tip, 5mm. O.D., for Small Needle Valve. One end has tooled flange to fit valve and the other end is finished at 45° angle. For use as delivery stem on funnels and similar items.

CHROMATOGRAPHIC TUBES

Minimum volume chromatographic tubes with fine control teflon needle valve. Fritted glass disc and extremely fine flow control with one 78-425-01 Teflon Needle Valve



18-302-24-14	Chromatographic Tube, 14 x 130 mm.	19.84
18-302-24-22	Chromatographic Tube, 22 x 200 mm.	20.14
18-302-24-32	Chromatographic Tube, 32 x 230 mm.	21.04
18-302-24-38	Chromatographic Tube, 38 x 230 mm.	23.44
18-302-24-48	Chromatographic Tube, 48 x 270 mm.	26.89
18-302-24-58	Chromatographic Tube, 58 x 300 mm.	28.84
18-302-24-80	Chromatographic Tube, 80 x 330 mm.	33.19
18-302-25-14	Chromatographic Tube, 14 x 130 mm.	22.09
18-302-25-22	Chromatographic Tube, 22 x 200 mm.	22.39
18-302-25-32	Chromatographic Tube, 32 x 230 mm.	23.59
18-302-25-38	Chromatographic Tube, 38 x 230 mm.	25.99
18-302-25-48	Chromatographic Tube, 48 x 270 mm.	29.89
18-302-25-58	Chromatographic Tube, 58 x 300 mm.	33.34
18-302-25-80	Chromatographic Tube, 80 x 330 mm.	39.19

**One piece
Plain**

**One piece
Graduated**

PLASTIC GLOVE BOXES

POSITIVE, GAS TIGHT SEALS

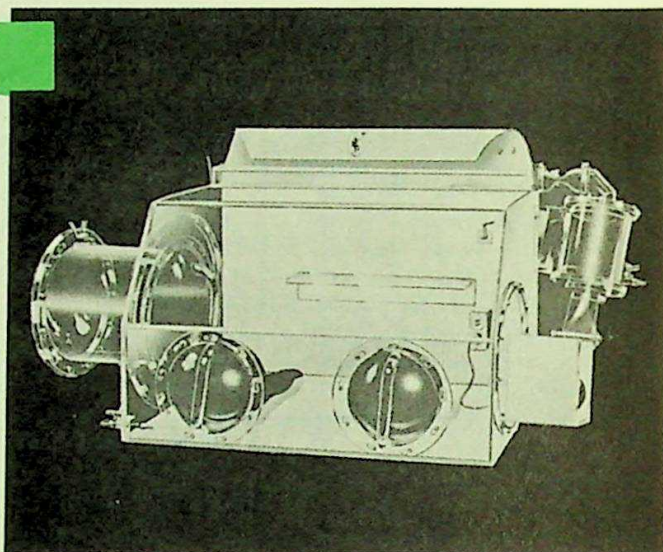
Manostat Plastic Glove Boxes have true *one-piece* construction, achieved with a chemical weld. Despite their moderate price, these boxes are designed and constructed with such de-luxe features as positive "O" ring seals throughout, for leak-proof performance . . . and a full diameter side entry, for maximum convenience. The Rohm & Haas Plexiglas II-UVA is unaffected by

most inorganic solutions, mineral and animal oils, low concentrations of alcohol, paraffinic and olefinic hydrocarbons, amines, alkyl monohalides, and esters containing more than ten carbon atoms. Cylindrical construction with dome cover plates on vacuum box will withstand full vacuum, making it possible to introduce any controlled atmosphere with great care.

ATMOSPHERIC

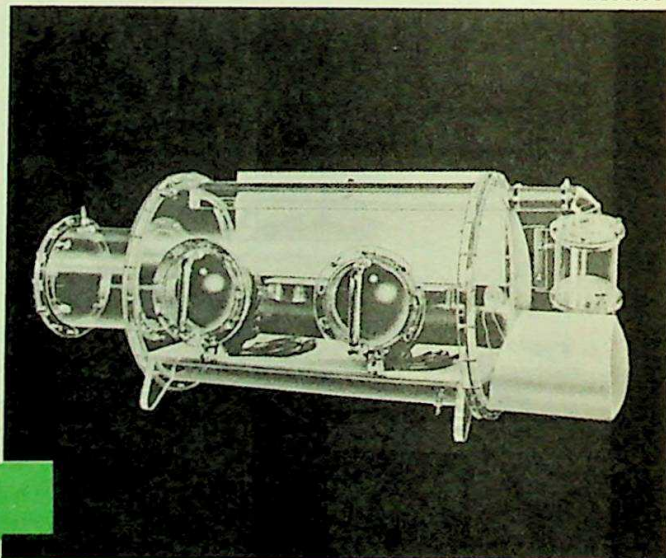
FEATURES

1. Positive "O" ring seals throughout.
2. Opaque white background for greater visibility.
3. Sealed interchangeable circulating and filter system.
4. Filter that may be removed and installed without disturbing system.
5. Interchangeable 12" diameter, 12" long air lock with covers.
6. Covers for gloves so that they may be changed without disturbing system.
7. Uniform distribution of flow from circulating system by means of graded manifold.
8. Internal removable shelf for storage.
9. Plastic diffuser on fluorescent light.
10. External switches for all controls.
11. Stainless Steel toggle valves for quick adjustment and preconditioning of system, air lock and filter.
12. Equalizing valves for gloves during evacuation on vacuum glove box.

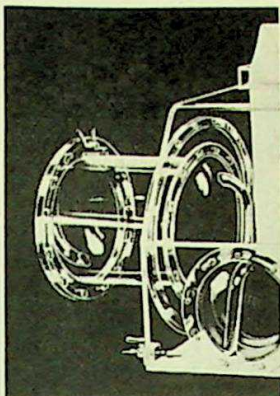


41-906-14 Complete Glove Box. Ready for use, with air lock, circulating system, and all accessories, as illustrated. 1,495.00

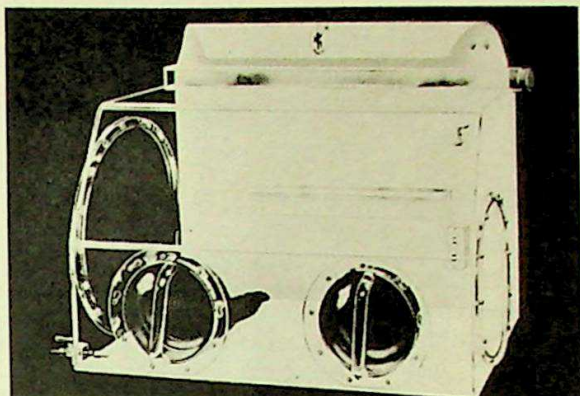
41-907-24 Complete Vacuum Glove Box. Ready for use with air lock circulating system and all accessories as illustrated. 2650.00



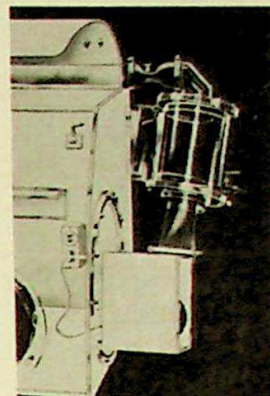
VACUUM



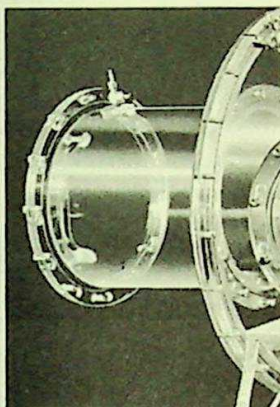
41-906-12 Air Lock Glove Box. Same as 41-906-11, but with air lock added as illustrated. **1,150.00**



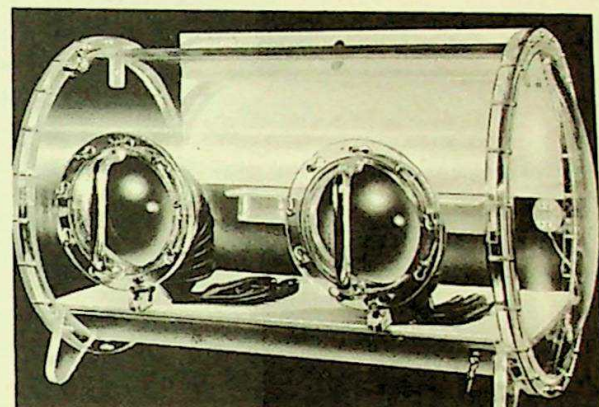
41-906-11 Simple Glove Box. Ready for use, with side cover plates and all other accessories, as shown. (Does not include air lock or circulating system.) **950.00**



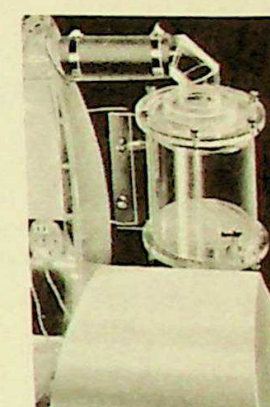
41-906-13 Circulating Glove Box. Same as 41-906-11, but with circulating system added as illustrated. **1,250.00**



41-907-22 Air Lock Vacuum Glove Box. Same as 41-907-21, but with air lock added as illustrated. **2100.00**



41-907-21 Simple Vacuum Glove Box. Ready for use, with side cover domes and all other accessories. **1650.00**



41-907-23 Circulating vacuum Glove Box. Same as 41-907-21 but with circulating system added as illustrated. **2250.00**

True one piece construction leak proof performance

GLOVE BOX SPECIFICATIONS

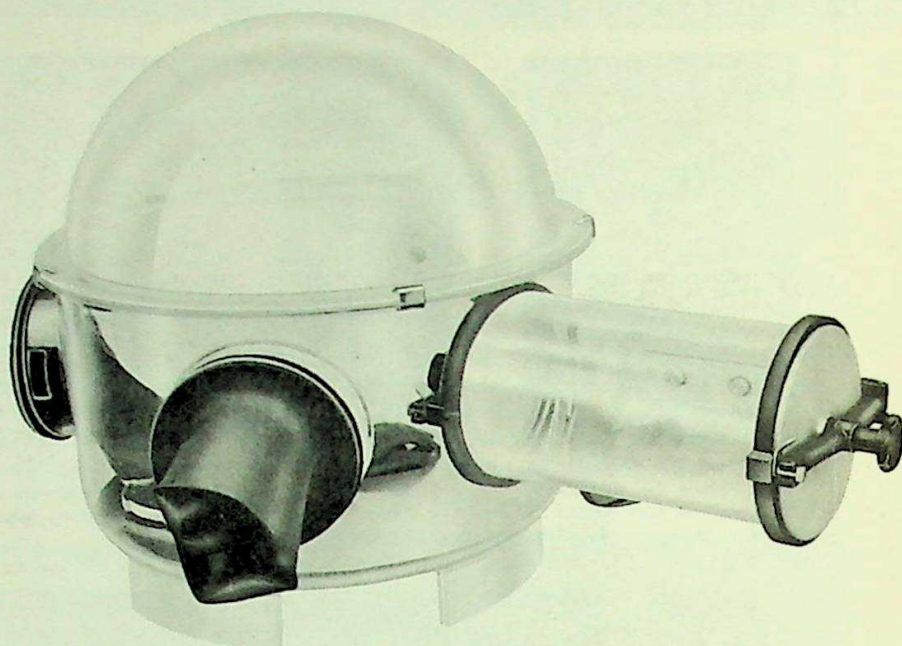
Atmospheric Glove Box

Simple Box:	1/4" thick Plexiglas; transparent top, front and sides; opaque white back and bottom; 36" long by 21" wide by 22" high and 18" diameter side entry.
Air Lock:	1/4" thick Plexiglas*; 12" diameter by 12" long.
Filter Unit:	1/8" thick Plexiglas*; 6" diameter by 8" long; with shredded polyethylene filter ends.
Blower Housing:	1/4" thick Plexiglas*; transparent end; opaque white sides.
Blower:	80 c.f.m. enameled steel centrifugal, 4" inlet by 2" outlet.
Seals:	"O" ring throughout.
Light:	20 watt fluorescent.
Valve:	Stainless Steel Toggle action.
Switches:	External
Allowable Pressures:	Box — 1 psig positive or negative. Air Lock — FULL VACUUM Filter unit — FULL VACUUM

Vacuum Glove Box

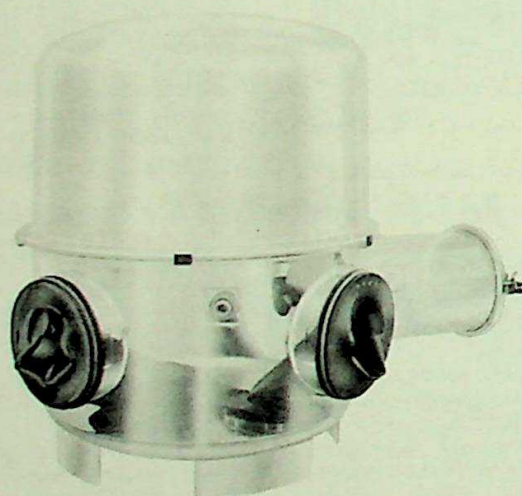
Simple Box:	3/8" thick Plexiglas*; transparent cylinder 24" dia. and 36" long with 24" diameter entries on both ends.
Light:	20 watt fluorescent with opaque plastic diffuser.
Allowable Pressures:	Box, Air Lock and Filter Unit all full vacuum.

New SMALL VACUUM GLOVE BOXES



Housing made of acrylic clear plastic specially designed for working with protective gas (He. N.A.) Because of its rounded shape the housing offers the necessary resistance to the pressure produced during evacuation of air. Hemispherical or cylindrical cover available. Fitting or removing the cover takes only a few seconds. False bottom made of stainless steel. Vacuum-resistant lock chamber makes it possible to introduce or remove

material without altering the conditions inside the box. Two acrylic covers protect the gloves during the evacuation of air. The pressure resulting from introduction of the gloves is taken up by a rubber equalising bag. This glove-box meets all requirements in which work has to be carried out in the presence of oxygen or other protective gases.



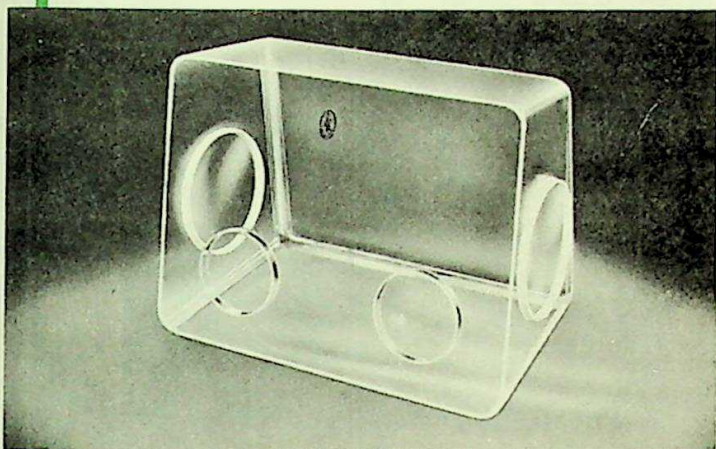
41-908 S. V. Glove Box. Standard type. Fitted with hemispherical cover. Internal volume 120 liters. Vacuum-resistant lock chamber, 7½ inches in diameter, with 2 doors and 2 connectors for ¼" Union screw coupling.—1 pressure equalising bag—1 false bottom made of stainless steel—2 connectors for ¼" Union screw coupling on the housing—2 protective covers for gloves—1 pair Super-Neoprene rubber gloves, 30 inches long and 0.25 inches thick, with 2 ring-fasteners. ea.1490.00

41-908-01 S. V. Glove Box, Enlarged Model. Same design as 41-908-00, but with cylindrical cover. Internal volume 170 liters. ea.1640.00

ACCESSORIES, SPARE PARTS AND SPECIAL EQUIPMENT

41-908-51	Sealed connecting plug	ea.	35.00
41-908-52	Pressure equalising bag	ea.	27.00
41-908-53	Super-Neoprene gloves, size 7½, No. 2	pr.	40.00
41-908-54	Super-Neoprene gloves, size 8½, No. 3	pr.	40.00
41-908-55	Rubber ring fastener for gloves	ea.	3.50

ECONOMICAL DUST BOX, DRY BOX, GLOVE BOX AND ENVIRONMENTAL ENCLOSURE



An economy model Glove Box, that includes features only available on models 3 to 10 times the price. Actually costs less than a do-it-yourself box.

Fabricated of 5/32 Rohm & Haas Plexiglass II-UVA, the front plate is welded to a one-piece mold in such a way, as to give an hermetic seal. Overall dimensions are 36" wide, 20" deep and 26" high.

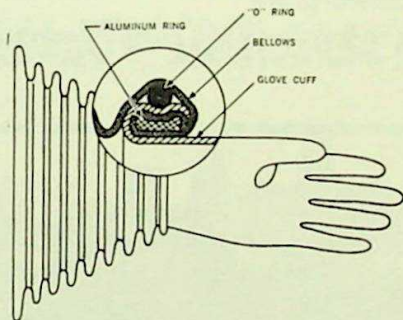
The two 12" side entries have readily removable covers, and the 8" circular glove holes will accept any standard glove box glove. Especially recommended is our 41-907-31 glove, which has the exclusive replaceable hand with "O" ring connection.

Any number of boxes may be connected in series, by means of a sleeve type connector.

Also available, as optional accessories, are an air lock, valve connections, fluorescent lamp, UV lamp and air blower with filter.

41-905	Glove box as illustrated, complete with two side access opening covers.	186.00
41-905-02	Air lock for connection to 41-905 (with coupling sleeve)	76.00
41-905-04	Interior cover for 12" hole to be used with air lock, or to separate coupled boxes.	22.00
41-905-06	Coupling sleeve for joining boxes.	16.00
41-905-08	Hand port cover, pair.	28.00

SLEEVES, GLOVES and BARE HAND ENTRIES (Iris Ports) for Glove Boxes shown on pages 24, 25, 27



The new Manostat sleeve and glove combinations are especially recommended for use with the Manostat Glove Boxes. They have been examined and found to satisfy the rigid requirements of Manostat Quality Standards. Separating the glove from the sleeve permits various gloves to be interchanged in a matter of seconds to fit specific requirements while the sleeves remain attached to the box. Almost any standard laboratory glove, surgical glove or disposable glove can be used with these sleeves. Advanced O-Ring construction combines glove and sleeve into a leak-proof unit integral with the dry box. Persons with large or small hands can use the same box comfortably and without delay by changing to smaller or larger gloves.

41-907-31 Bellows Type glove made of natural rubber with removable neoprene hand. By keeping the sleeves away from the user's arms, the Bellows shape permits air circulation for cooler operation. These sleeves fit 8" circular ports and 7" x 10" oval ports. Extended length with gloves is approximately 30". in sizes 8, 9 or 10. Pair 60.00

41-907-32 Clamping Ring (two req'd)ea. 6.10

41-907-51 Sleeve only for Bellows Type Glove 41-907-31. Complete with aluminum ring and O-Ring. Pair 57.50

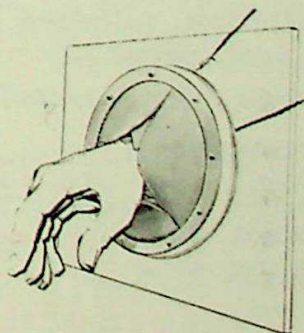
41-907-52 Replacement O-RingEa. 1.60

41-907-53 Neoprene Gloves only, with textured palm and fingers for use with above sleeve. In sizes 8, 9 and 10. Pair 3.50

41-905-18 Disposable Polyvinyl Chloride Gloves. This new .006" thick glove is so sensitive to touch that you can feel whether a dime is heads or tails! They are extremely strong with a tensile strength of 10 p.s.i. Available in sizes small, medium or large. Ten pairs per box. Box 4.00

41-907-54 Economy Glove. Made of one-piece seamless Neoprene, these gloves are especially suitable for our 41-905-00 Economy Glove Box. One piece seamless construction insures protection from liquid, air or gas penetration. Universal hands, either right or left, permits gloves to be interchanged for either hand. Medium and Large. Pair 35.00

41-905-20 Iris port. Affords 21 points of contact through 7 layers of soft conforming rubber. Easy access and withdrawal coupled with excellent sealing properties. Fits Economy Glove Box 41-905. Pair 65.00



Glasskote™

A Protective, Non-Oily, Water Repellent Silicone Spray for treating Glassware, Ceramics, Metal, Rubber and Plastic Ware.

- General laboratory ware (beakers, bottles, flasks, test tubes, graduated cylinders, etc.)
- Glass and porcelain petri and evaporating dishes
- Ground glass stoppers, rubber stoppers, plastic and rubber gaskets, etc.
- Glass, ceramic, metal or plastic containers
- Easy application with Aerosol Spray.

Glasskote is non-oily, semi-organic, and imparts a smooth, even and invisible film which has excellent water repellent characteristics. Foreign materials which tend to cling to container walls are flushed out and drained with amazing thoroughness. In addition, the Glasskote film helps prevent surface scratches, and increases impact strength of glassware, thus reducing breakage. Makes labware cleaning easier. Glasskote is unaffected by most cleaning solutions. To apply, just clean the glass or other surface, spray with Glasskote, rinse thoroughly with water, and cure at 212°F, (100°C.) for 10 minutes, or at room temperature for 24 hours.

41-564-01 Glasskote, in 12 oz. spray can . . . ea. 3.99
per doz. 43.10



GLASSKOTE

- Reduces glassware scratching and breakage
- Increases impact strength of glass by as much as 15%
- Non-oily—Glasskote leaves no greasy residual film
- Improves appearance—provides clean, sparkling surface
- Permits easier and faster cleaning without heavy scrubbing
- Water repellent—GLASSKOTE treated surfaces shed liquids and dry quickly
- High degree of stability—resistant to heat, moisture and most chemicals. Will withstand normal autoclaving.
- Prevents sticking of rubber or glass stoppers

MANOKOTE™

AIR DRY VINYL SPRAY PAINT

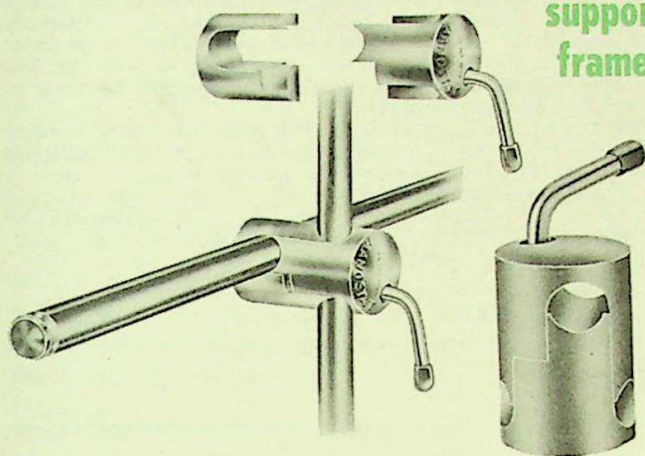
- Protective coating prevents corrosion by water, alkalis and acids.
- High dielectric properties makes Manokote ideal for use as an electrical insulator.
- Color coding of instruments.
- Weather protection, resistant to sunlight and salt spray.
- Easy application with Aerosol Spray.

CATALOG	DESCRIPTION	*PRICE
65-355-04	MANOKOTE, clear	2.69
65-355-08	MANOKOTE, grey (metallic)	2.69
65-355-12	MANOKOTE, black	2.69
65-355-24	MANOKOTE, white	2.69

*Less 10% for cases of 12 cans



MANOSTAT EZ-Lock Clamps for laboratory support frames

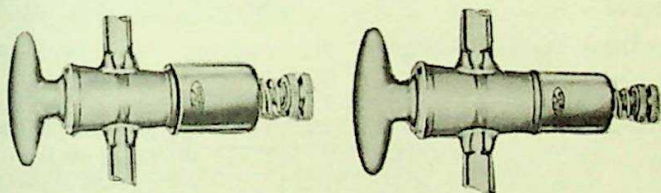


Cast of rustproof aluminum alloy, bright finish with plastic cap on handle for sure, comfortable grip. EZ-Lock Clamps will accept any two 1/2" diameter rods in 90° angle position. Try EZ-Lock—the new, time-saving way to mount support frame set-ups.

79-091-12 EZ-Lock Clamp . . . packaged 12 to a box per doz. 8.10 6 doz. 43.20

Note: a single EZ-Lock Clamp is priced at .75 ea.

UNIVERSAL STOPCOCK ADAPTERS



By choosing the proper size Universal Stopcock Adapter, any glass stopcock in the laboratory can be converted to a pressure tight stopcock. Stopcock adapters eliminate the annoyance of leaking stopcocks and the high cost of special pressure stopcocks. They are manufactured completely of corrosion resistant materials.

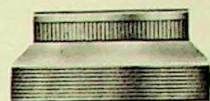
78-556-10: Stopcock adapter Universal, complete with washer, for micro and 2mm. stopcocks. **2.85**

78-556-11: Stopcock adapter, Universal, complete with washer, for stopcocks from 2 to 4mm bore. **3.25**

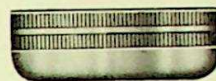
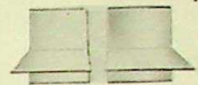
78-556-12: Stopcock adapter, Universal, Medium, complete with washer, for stopcocks from 6 to 8mm. bore **3.90**

78-556-13: Stopcock adapter, Universal, Large, complete with washer, for stopcocks from 10 to 15mm. bore. **6.50**

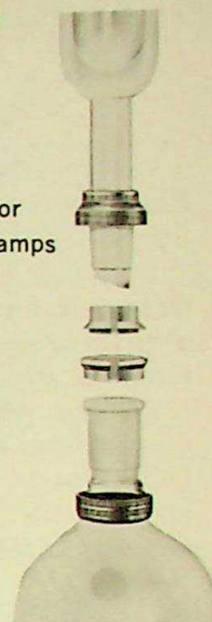
§ JOINT CLAMPS



Instructions for
Assembly of § Clamps



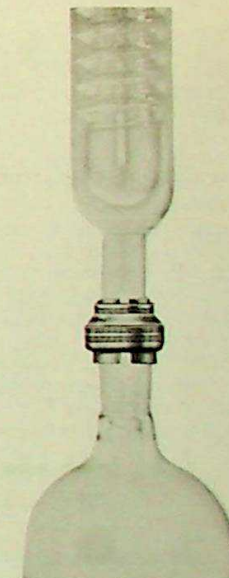
§ clamp disassembled
into its four components.



1. Slide metal rings over
large end of joints.



2. Slide slit plastic bushing
over large end of joint.



3. Thread two metal rings
together to complete
assembly.

A practical standard taper glass joint clamp that both provides *positive adjustable closure* Manostat's simplified clamps are made with *polypropylene* inserts that withstand temperatures of up to 300°F. After slipping insert and clamp over the joint from the large end, one screws the metal parts together, tightening them until positive closure is attained. The plastic insert equalizes pressure all along the joint.

Cat. No.	Size	Price	Cat. No.	Size	Price
18-837-01	10/30	2.20	18-837-06	29/42	4.15
18-837-02	12/30	2.50	18-837-07	34/45	5.50
18-837-03	14/35	2.60	18-837-08	40/50	8.50
18-837-04	19/38	2.70	18-837-09	45/50	10.00
18-837-05	24/40	3.35			

ELECTRONIC RELAY NO. 4 *new RotoRelay works like a motor*



Electronic Relay Model #4 is the most important in the design of highly sensitive electronic relays for the control of relatively large amounts of power. Every conceivable relay improvement is embodied in this new instrument. It is designed with the new RotoRelay, which employs a mercury-to-mercury contact in a completely sealed steel chamber.

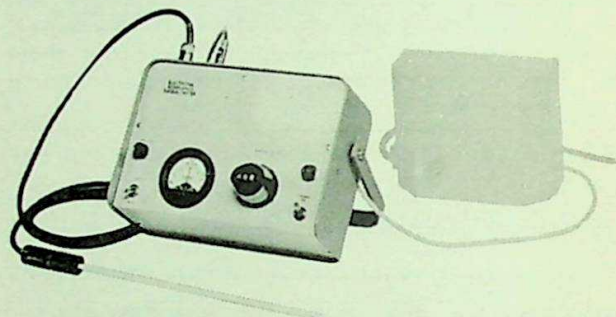
RotoRelay employs a sealed mercury switch tube which is tilted to the open-circuit or closed-circuit position by a highly efficient magnetic circuit. There is no sliding plunger within the mercury tube. This means you get *positive action* . . . no danger of sticking or breaking! The d.c. power input for reliable operation of RotoRelay with a 35-amp mercury tube is less than one watt, compared with four watts for a mercury plunger relay.

81-615-06 Electronic Relay, model #4, load current-35 amps. 115 volt AC; control voltage-7 volts DC open circuit; control current-2 microamps DC closed circuit. ea. 115.00

ELECTRONIC RESISTANCE THERMOMETER

Range Minus 100°C to 900°C

An Electronic Resistance Thermometer that is accurate to 0.25° Centigrade or 0.2% and sensitive to 0.25° Centigrade over a 1000° range, from minus 100° to plus 900° Centigrade. The direct ring drive on the counter eliminates slipping and backlash. Compact construction may be used in vertical or horizontal positions. Using integral handle as stand, may also be angled. The circuit of the Electronic Resistance Thermometer is composed of four main sections. The first is a Wheatstone bridge of unusual design, with non-linear shaping elements and suitable calibrating adjustments. The resistance bulb is of the three lead type so that the effect of the lead resistances can be eliminated. The heart of the bridge is a special infinite resolution slide wire of high linearity. This arm can be made to follow the temperature-resistance function of a pure platinum resistance element to an accuracy of 0.25° for a 1000°C. range. In the other legs of the bridge there are suitable adjusting potentiometers for scale factor adjustment and for tolerance allowances. The bridge voltage is so low that there is virtually no self-heating in the platinum bulb. Input power, 105 to 125V, AC, 50 or 60 cycles. The instrument is housed in a seamless drawn aluminum case: 10"x7"x4".

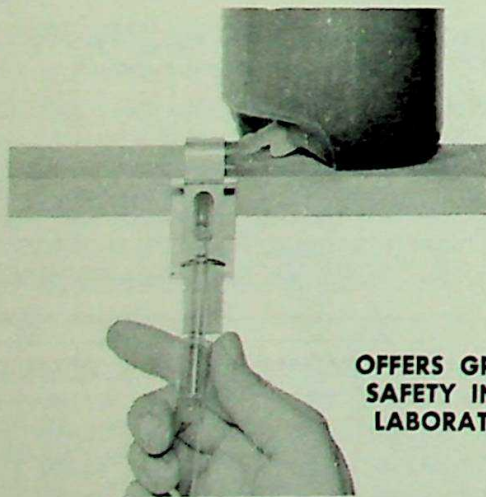


81-370 Electronic Resistance Thermometer without bulb. Either bulbs 81-370-11 or 81-370-12, or both must be ordered at the same time as the thermometer. These bulbs are individually calibrated for the thermometer. ea. 675.00

81-370-11 Stainless Steel Bulb, ea. 250.00

81-370-12 Quartz Bulb, ea. 250.00

81-370-13 Temperature controller, ea. 112.50



**OFFERS GREATER
SAFETY IN THE
LABORATORY!**

MANOSTAT CORINTH FINGER TIP FLUID DISPENSER

Eliminates old-fashioned bottle pouring. It's ideal for frequent dispensing of fluids—reagents, medicinals, pharmaceuticals, sterile solutions, corrosives, volatile solvents, etc.—in routine laboratory, pharmaceutical and hospital needs. Precision made for lifelong service, the Manostat dispenser can be used with bottom tubulated aspirator bottles utilizing gravity feed and with siphon feed from standard containers and storage carboys . . . unit clamps to any shelf or flat surface.

33-874-51 Finger Tip Fluid Dispenser complete with Pyrex Brand glass nozzle and Tygon delivery tubing. ea. 10.00

CHEMICAL RESISTANCE CHART FOR MANOSTAT PRODUCTS

ITEM	CODE	ITEM	CODE
STANDARD MINIPET	A	MANOPET	F
SOLVENT MINIPET	B	{VARISTALTIC	G
ACID MINIPET	C	{MACROSTALTIC	
VARI PET TEFLON TIP	D	MINISTALTIC PUMP	H
VARI PET METAL TIP	E	DILUTROL AND DUOPET	I

APPLICATION	A	B	C	D	E	F	G	H	I		A	B	C	D	E	F	G	H	I
ACETIC ACID (3%)			YES	YES			YES		YES	GLUCOSE	YES	YES	YES	YES	YES	YES	YES	YES	YES
ACETIC ACID (60%)			YES	▲			YES		▲	GLYCERINE		YES	YES	▲	YES	YES	YES	YES	▲
ACETIC ACID (Glacial)			YES	▲			YES		▲	HEPTANE		YES		▲	YES				▲
ACETIC ANHYDRIDE		YES	YES		YES			YES		N-HEXANE		YES			YES				
ACETONE		YES			YES	YES				HYDRAULIC OIL	YES	YES	YES		YES			YES	
ALCOHOLS in general		YES	YES		YES			YES		HYDROCHLORIC ACID (10%)			YES			YES	YES	YES	
ALUMINUM CHLORIDE SOLUTIONS	YES	YES	YES		YES		YES			HYDROCHLORIC ACID (37.5%)			YES			YES	YES	YES	
ALUMINUM SULFATE SOLUTIONS		YES	YES		YES	YES	YES	YES		HYDROGEN PEROXIDE			YES				YES	YES	
AMMONIA	YES	YES	YES		YES		YES			ISOOCTANE		YES	YES		YES			YES	
AMMONIUM CHLORIDE SOLUTIONS	YES	YES	YES		YES		YES			ISOPENTYL ACETATE		YES			YES				
AMMONIUM HYDROXIDE (58%)		YES	YES		YES	YES	YES	YES		KEROSENE	YES	YES	YES		YES				
AMMONIUM PERSULFATE (Sat'd.)			YES							KETONES in general		YES			YES				
AMMONIUM PHOSPHATE			YES				YES			LACTIC ACID (85%)	YES	YES	YES		YES	YES	YES	YES	
AMMONIUM SULFIDE			YES			YES	YES	YES		MAGNESIUM CHLORIDE	YES	YES	YES		YES	YES	YES	YES	
ANILINE		YES			YES					METHYL ALCOHOL	YES	YES	YES		YES	YES	YES	YES	
BARIUM HYDROXIDE SOLUTIONS	YES	YES	YES		YES			YES		METHYL BENZOATE		YES			YES				
BENZENE		YES			YES					METHYL ETHYL KETONE		YES			YES				
BORIC ACID	YES	YES	YES		YES	YES	YES	YES		METHYL ISOBUTYL KETONE		YES			YES				
BUTANOL	YES	YES	YES		YES		YES			NITRIC ACID (10%)			YES			YES	YES	YES	
BUTYL ACETATE		YES			YES					NITRIC ACID (50%)			YES			YES	YES		
CADMIUM CHLORIDE			YES							OLEIC ACID		YES			YES	YES			
CALCIUM CHLORIDE	YES	YES	YES		YES		YES	YES		OXALIC ACID			YES				YES		
CALCIUM HYPOCHLORITE			YES				YES	YES	YES	PALMITIC ACID			YES						
CARBON TETRACHLORIDE		YES			YES					PERCHLORIC ACID (68%)			YES						
CHLOROFORM		YES			YES					PHOSPHORIC ACID (75%)		YES	YES		YES	YES	YES	YES	
CHLOROACETIC ACID		YES			YES					PHOTOGRAPHIC DEVELOPERS			YES						
CHROMIC ACID (10%)			YES			YES	YES	YES		PHOTOGRAPHIC FIXING SOLUTIONS			YES						
CHROMIC ACID (50%)			YES			YES	YES	YES		POTASSIUM CHLORATE	YES	YES	YES		YES	YES	YES		
CITRIC ACID (10%)	YES	YES	YES		YES	YES	YES	YES		POTASSIUM HYDROXIDE (5%)	YES	YES	YES		YES	YES	YES	YES	
COPPER CHLORIDE SOLUTIONS			YES				YES			POTASSIUM HYDROXIDE (Conc.)	YES	YES	YES		YES	YES	YES	YES	
COPPER SULFATE SOLUTIONS	YES	YES	YES		YES		YES			POTASSIUM PERMANGANATE	YES	YES	YES		YES				
CELLOSOLVE		YES	YES		YES					SAE 20 OIL	YES	YES	YES		YES				
CRESOL		YES			YES					SODIUM HYDROXIDE (Conc.)			YES			YES	YES	YES	
CYCLOHEXANONE		YES			YES					SODIUM HYPOCHLORITE			YES			YES	YES	YES	
DIACETONE ALCOHOL		YES			YES	YES		YES		STANNOUS CHLORIDE		YES	YES		YES	YES		YES	
DIBUTYL PHTHALATE		YES			YES	YES		YES		STEARIC ACID	YES	YES	YES		YES	YES	YES		
DIBENZYL SEBACATE		YES			YES	YES		YES		SULFURIC ACID (10%)			YES			YES	YES	YES	
DIISOBUTYL KETONE		YES			YES					SULFURIC ACID (50%)			YES			YES	YES	YES	
ESTERS in general		YES			YES					SULFURIC ACID (75%)			YES			YES	YES	YES	
ETHERS in general		YES			YES		YES			TANNIC ACID	YES	YES	YES		YES	YES	YES	YES	
ETHYL ACETATE		YES			YES					TARTARIC ACID	YES	YES	YES		YES		YES	YES	
ETHYL BENZENE		YES			YES					TOLUENE		YES			YES				
ETHYLENE GLYCOL		YES			YES	YES	YES	YES		TRICHLOROACETIC ACID			YES						
ETHYL ETHER		YES			YES					TRICHLOROETHYLENE		YES			YES				
FATTY ACIDS		YES			YES		YES			TRICRESTYL PHOSPHATE		YES	YES		YES				
FERRIC CHLORIDE SOLUTIONS			YES			YES	YES	YES		TRIETHANOLAMINE			YES	YES	YES				
FERRIC NITRATE SOLUTIONS			YES							TURPENTINE	YES	YES	YES		YES		YES		
FERRIC SULFATE			YES				YES			XYLOL (Xylene)		YES		▼	YES				▼
FORMALDEHYDE (40%)	YES	YES	YES		YES		YES			ZINC CHLORIDE	YES	YES	YES	YES	YES		YES		YES
FORMIC ACID (100%)		YES	YES		YES	YES	YES	YES											
FUEL OIL	YES	YES	YES	▼	YES	YES		YES	▼										
GASOLINE		YES		YES	YES				YES										

This chart contains information gained from laboratory tests and should be used only as a guide.

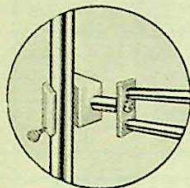
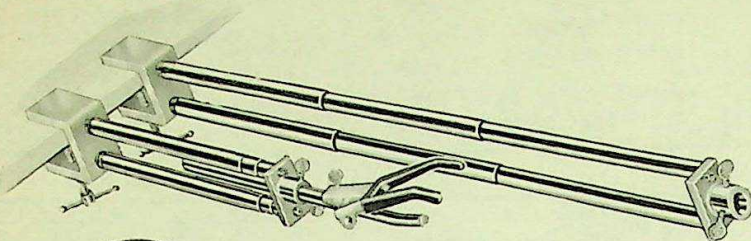
All chemicals tested at room temperature.

For application NOT shown consult Manostat Engineering Dept.

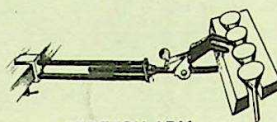
Blank space indicates no data available or not recommended.

STRETCH-ARM

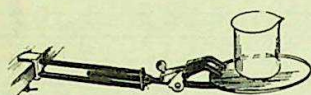
Expandable, Telescoping Support Arm for Laboratory Clamp Set-ups



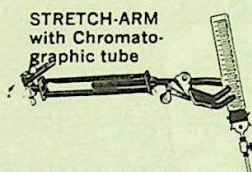
Stretch-Arm is available also with aluminum rod for securing to laboratory support frame



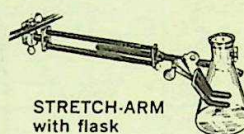
STRETCH-ARM with funnel support



STRETCH-ARM with plate support and beaker



STRETCH-ARM with Chromatographic tube



STRETCH-ARM with flask



STRETCH-ARM with Blak-Ray Ultraviolet Light for thin layer Chromatography

This expandable unit can be used to set up many types of laboratory apparatus at any desired working position. Stretch-Arm measures only 7½ inches when fully retracted—18 inches when fully extended or any length in between. Available in two types—with special aluminum "C" clamp for securing to edge of table or lab bench, or with aluminum rod designed to attach to laboratory support frame.

79-094-61 Stretch-Arm, complete with aluminum "C" clamp for securing to edge of table or lab bench, but without apparatus clampea. 10.95

79-094-62 Stretch-Arm, complete with aluminum rod for securing to support frame, but without apparatus clampea. 8.95

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